STATE OF NORTH DAKOTA

Criminal Justice Information Sharing Project
Technology Architecture

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Management
Consultants

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I. <u>INTRODUCTION</u>

I. INTRODUCTION

The ability of the North Dakota criminal justice community to fulfill its public safety responsibilities depends on the effective and efficient use of resources and timely access to current, complete, and accurate information by all parties. The state of North Dakota is defining the future direction for criminal justice information sharing (CJIS) and systems integration in support of the criminal justice community by embarking on a CJIS planning project that encompasses the entire criminal justice environment. This report, Technology Architecture, represents the second of four project deliverables that assess the current technology environment, develop an architecture for future development, and define the plan for implementation.

A. BACKGROUND

In the fall of 2000, North Dakota applied for and received a grant from the National Governors' Association (NGA) to develop a CJIS plan. North Dakota saw this as an excellent opportunity to bring members of the justice community together to set a direction for coordinated efforts. At about the same time, North Dakota applied for technical assistance from The National Consortium for Justice Information and Statistics (SEARCH). A criminal justice advisory committee was established consisting of a broad cross section of people from state, county, and local organizations to support that effort. The SEARCH assessment was used in the development of the CJIS plan.

In December 2000, a team traveled to an NGA workshop in Santa Fe, New Mexico. The workshop proved valuable for learning what other states are doing and provided ideas for creating a governance structure. The team continued meeting (with additional staff) to provide direction and oversight to the planning process. The staffs of the Attorney General's Office, State Court Administrator's Office, and Highway Patrol developed the short-term initiatives and next steps included in the plan.

On February 22, 2001, the advisory committee met again to review the SEARCH technical assistance report and a draft of the plan. The feedback was used to further refine the plan before submission to the NGA. The plan outlined five short-term projects and three long-term initiatives as next steps to full-scale information sharing. These short-term projects recognized the fact that there currently exists a commitment to information sharing. The integration work under way is evidence of staff in individual agencies and branches that have taken initiative and shown leadership. Success demonstrated in the implementation of these projects will form a foundation for further planning efforts.

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The three long-term projects outlined in the plan reflected the commitment to criminal justice integration well into the future. To do this, it is necessary to design and develop the technical infrastructure and data standards to facilitate information sharing on a wider scale. These projects were included in a request for grant funding from the NGA and Department of Justice and resulted in this project.

B.   OBJECTIVES AND SCOPE

The state of North Dakota has defined the project objectives described below. In addition, the state and MTG Management Consultants, L.L.C., have developed the scope detailed later in this subsection.

1.   Objectives

The primary goal of this project is to establish a framework for CJIS. In working toward this goal, the following objectives are to be achieved:

- Define the information-sharing needs of North Dakota criminal justice organizations.[1]

- Develop a conceptual design for technologies to support information exchange.

- Develop data standards for information that is shared among criminal justice organizations.

- Identify and plan the implementation of high-priority CJIS projects.

The focus of this work plan is to achieve these objectives by conducting the following tasks:

- Documenting the current technology environment supporting criminal justice within the state.

- Analyzing the current situation and needs to identify where technology improvements may be made that will increase effectiveness, integration, and data sharing.

- Identifying components of existing criminal justice information systems (ISs) and reasonable migration paths toward an integrated system.

- Defining high-level information exchanges (e.g., incident reports as opposed to all data elements in an incident report) between primary justice organizations/systems within the scope of the project, where benefits from automating such exchanges might be realized.

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[1]   The term "organizations" is used to represent both criminal justice agencies (i.e., departments within the state of North Dakota) and the North Dakota Judiciary.

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- Providing a high-level "road map" and identifying major projects that will offer a prioritized strategic approach, with associated rough cost estimates.

Accomplishing these tasks will position the state of North Dakota to realize its vision, which is based on the state integrated justice report completed by SEARCH, the state's initial grant application, interviews with state justice practitioners, and input received at CJIS workshops. This vision can be summarized as follows:

> *Improve public safety by providing effective and efficient justice policies, processes, and information systems required to capture and share complete, accurate, and timely information in support of program operations and informed decision making across jurisdictional and organizational boundaries statewide.*

Realizing this vision will require significant effort on the part of primary and secondary stakeholders, as well as strong support and cooperation among the organizations and people serving the justice community within the state of North Dakota.

2.   Scope

The scope of this engagement is defined by three key components:

- The work plan and associated methods established to meet project objectives.

- State criminal justice organizations within the scope of the project.

- ISs within the scope of the study, both as it applies to current systems analysis and integration planning.

Work Plan

Detailed descriptions of the tasks included in the work plan are provided in Sections III and V of the Work Plan. In summary, key activities are:

- Defining and executing a work plan that achieves the overall planning objectives for criminal justice integration within the state of North Dakota.

- Assessing North Dakota's current technology environment.

- Completing a needs assessment focused on information sharing and integration between justice systems and the provision of information to law enforcement officers in the field.

- Confirming the vision and goals that will drive the criminal justice community's integration and information-sharing efforts.

- Developing conceptual architectures that establish a target for improvement in order to attain the desired future technology environment.

- Establishing a prioritized migration plan, with estimated costs and time frames for moving the criminal justice technology environment toward the vision and future architectural models.

- Providing a final report that describes where the criminal justice systems are today and where they need to be in the future, as well as gives a road map for moving forward.

Completing these activities will establish the requirements and associated plans and tasks needed for state of North Dakota to capitalize on information-sharing opportunities and achieve improved integration between criminal justice systems in the state.

Organizations

A clear understanding of the organizational scope for this planning project is critical to providing focus within the time and resource constraints of the project. This subsection lists the organizations within and outside the scope of this planning effort. Local law enforcement, detention facilities, state's attorneys, and courts are considered primary partners and are within the scope of the project. In addition, the organizations within the scope include:

- Department of Corrections and Rehabilitation (DOCR).

- Department of Transportation (DOT).

- Information Technology Department (ITD) (specific to CJIS support activities).

- North Dakota Association of Counties (NDACO).

- North Dakota Highway Patrol (NDHP).

- North Dakota Office of the Attorney General (NDAG).

- NDAG, Bureau of Criminal Investigation (BCI).

- Office of Management and Budget (State Radio).

- North Dakota Judicial Branch (NDJB).

In addition, as directed by the project team, MTG worked with state organizations regarding other related justice ISs. MTG solicited information from local jurisdictions across the state because they are the state's primary CJIS customers. This input will be included in relevant portions of the work products.

Although there are other justice stakeholders in the state who will be invited to participate and provide input, they are considered outside the scope of this project. Those organizations include:

- Department of Health.

- Game and Fish Department.

- Law Enforcement Training Academy.

- Legislative groups.

- North Dakota League of Cities.

- State ITD efforts not related to CJIS.

- Victims' advocates.

In addition, other federal agencies, such as the FBI and DEA, and programs, such as High-Intensity Drug Trafficking Area (HIDTA), are also considered outside the scope of this project, although information may be collected and utilized in support of organizations within the scope.

Information Systems

This subsection outlines the IS scope for the project. In general, this scope is limited to:

- Major criminal justice applications associated with case management, operational support, and research, including their platform database and server environments.

- Interfaces supporting information exchanges between criminal justice systems.

- Local area network (LAN), wireless, and wireline environments supporting criminal justice.

- Systems and infrastructure security environments related to or supporting criminal justice.

- Mobile data computing devices in law enforcement patrol vehicles.

- Current personal computing platforms and office support software environments.

Technology support functions and staffing, data center(s) infrastructure, and peripheral devices will not be included within the scope nor will detailed counts of devices (e.g., terminals, PCs, mobile data computers [MDCs]) attached to the various systems be developed.

C.   PROJECT APPROACH

EXHIBIT I-1, which follows this page, depicts our design methodology or approach for this project, which is based on a concise set of proven strategies or tactics. These strategies have been developed from our experience in similar projects and the needs of the state. They are:

- Utilize experienced IT and criminal justice staff.

- Actively involve the criminal justice advisory committee.

- Conduct regional work sessions and site reviews.

- Utilize information engineering-based design methods.

- Utilize structured data-gathering and analysis tools.

- Focus on functional objectives of the CJIS project.

These strategies are an integral part of our approach and result in the four phases and four deliverables presented in the exhibit. The four deliverables (Requirements Document, this Technology Architecture, Data Standards, and Implementation Plan) create a road map for the development, acquisition, and implementation of a CJIS system that will achieve North Dakota's integration vision. Each of the four phases and deliverables is detailed below.

Phase I: Deliverable 1 – Requirements Document

This phase of the project documents current and future functional requirements for CJIS and resulted in the Requirements Document deliverable. In this effort, MTG gathered background information about the current environment. We interviewed state organization representatives to gather technical and functional information to prepare for regional design team meetings and identify state-level CJIS requirements. We also began a series of regional meetings that focused on educating the criminal justice community on the integration model and gathered specific organization requirements around the state. These efforts provided information to participants about the current environment, gathered information about their processes and systems, and identified their needs and vision for the future. The results of the work sessions and interviews were summarized and shared with stakeholders. The information collected within this phase is presented in the Requirements Document as general and management CJIS requirements with current information exchanges identified.

EXHIBIT I-1

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT

PLANNING APPROACH

Project Work Plan	Requirements Document	Technology Architecture	Data Standards	Implementation Plan
■ Scope ■ Tasks ■ Schedule ■ Milestones	■ Current Environment ■ Current Processes ■ Current Exchanges ■ Gap Analysis ■ Needs Assessment ■ Key Issues	■ Strategic Decisions ■ Business Architecture ■ Network ■ Application ■ Security ■ Server ■ Management	■ Definitions ■ Data Framework ■ Strategic Data Model ■ Entity Relationships ■ Data Elements	■ Strategic Initiatives ■ Implementation Strategy ■ Tactical Projects ■ Schedule ■ Budget

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Phase II: Deliverable 2 – Technology Architecture

In this phase, we developed a design for the technology required to support the electronic exchange of information and requirements identified in Phase I. Our approach to this deliverable was to present models depicting the various alternatives or options available to the state. Examples from other state and local jurisdictions were presented in a joint application design session of technical personnel. MTG has developed information-sharing technology architectures for a number of states, including Nebraska and Kansas, and drew on this experience to focus the North Dakota CJIS effort. These designs incorporate information publication and integration requirements that helped define mechanisms that successfully provide the necessary business benefit with the minimum of financial commitment. One of the fundamental principles in the above design is the strategy to publish information as a necessary step toward integration. Publishing provides visibility for the information contained in the operational databases at both the state and local levels. This visibility allows for improvements to be made to the databases and standards to be developed such that the electronic exchange of information can occur in an operational environment. The result of this phase is a technology architecture for CJIS that is specified in this Technology Architecture document.

Phase III: Deliverable 3 – Data Standards

In this phase, we will develop a data architecture and standards for the future CJIS system. This architecture will consist of both entity-relationship diagrams completed using the ERWIN modeling tool and a database of standard data elements. The data elements will correspond to the attributes in the entity-relationship model. We will start with the existing models that we developed for the state of Kansas and other states. These existing models will be compared against the information collected in the primary state criminal justice databases. The work effort within this phase starts with the high-level elements and cycles through increasingly more detailed revisions of the data standards. The end result will be a comprehensive Data Standards document.

Phase IV: Deliverable 4 – Implementation Plan

While implementation plans or strategies will have been addressed in a limited manner in some of the other three deliverables, an overall plan will need to be completed. In this phase, we will define a set of strategies and a plan for guiding the CJIS implementation. This plan will bring together the other state plans or strategies and present a concise approach to meeting the objectives of the project. A series of tactical projects will be developed, forming the basis of the Implementation Plan, which will utilize a portfolio approach that identifies distinct projects. These projects can be approved and funded independently of other projects and are generally self-contained efforts. The implementation planning effort will also develop a complete high-level project budget that is intended for use in the 2003–2005 budget planning process. The project portfolio and budget constitute the Implementation Plan deliverable of this last phase of MTG's work on the CJIS planning project.

D.   DOCUMENT ORGANIZATION

The sections and appendices in this report combine to present the Technology Architecture for the CJIS environment. The report is the second of four deliverables that will define an integration plan for the state of North Dakota.

The remainder of this document is organized as follows

- Section II describes the customers, business vision, and goals along with enabling technology goals for the future CJIS.

- Section III discusses the business architecture for CJIS and outlines the governance structure and future information exchanges for implementing an integrated justice environment.

- Section IV provides a set of fundamental technology principles that will guide development of CJIS and presents the context within which the Technology Architecture will be described.

- Section V outlines the technology application, information, and integration architecture.

- Section VI describes the CJIS system infrastructure architecture.

- Section VII discusses the technology management and support standards, systems, and organization required to sustain and enhance the future CJIS.

In addition, the document contains these appendices:

- APPENDIX A – A glossary of acronyms used in the document.

- APPENDIX B – A bibliography of source materials.

- APPENDIX C – A list of current projects under way in North Dakota.

- APPENDIX D – A summary list of information exchanges for each major process and associated Level 1 process categorized by benefit/complexity rating and type of exchange.

- APPENDIX E – A detailed list of information exchanges for the event reporting process.

- APPENDIX F – A detailed list of information exchanges for the investigation process.

- APPENDIX G – A detailed list of information exchanges for the arrest process.

- APPENDIX H – A detailed list of information exchanges for the detention process.

- APPENDIX I – A detailed list of information exchanges for the filing process.

- APPENDIX J – A detailed list of information exchanges for the adjudication process.

- APPENDIX K – A detailed list of information exchanges for the disposition process.

- APPENDIX L – A detailed list of information exchanges for other programs.

- APPENDIX M – Application Architecture Packet.

- APPENDIX N – Information Architecture Packet.

- APPENDIX O – Integration Architecture Packet.

- APPENDIX P – Platform Architecture Packet.

- APPENDIX Q – Management Architecture Packet.

II. VISION AND GOALS

II.   VISION AND GOALS

The initial step in developing the CJIS implementation plan is to identify the long-term, or strategic, business goals and supporting technology goals upon which a vision of the future can be defined. Specific technology-related initiatives and tactical projects are then based upon implementation of the future vision, as described later in this document.

This section discusses the justice stakeholders that will be served, the vision for CJIS, and the strategic business and enabling technology goals that can be used to guide and measure progress in implementing the CJIS plan. The section is organized under the following headings:

- ■   *Customers*. Customers are the recipients and beneficiaries of the results of any new technology acquired through implementation of this plan.

- ■   *Vision*. The vision statement expresses the desired future state of justice community operations and systems when the CJIS system is implemented.

- ■   *Business Goals*. Business goals briefly state the desired direction of the justice community's business environment and are the basis for the enabling technology goals.

- ■   *Enabling Technology Goals*. The enabling technology goals reflect desired technology results that will support realization of the business vision and goals. They provide the basis for establishing the long-term vision for technology.

These statements about the future provide a strategic business technology framework within which specific technology change initiatives and plans of action will be developed.

A.   CUSTOMERS

North Dakota's justice information customers are defined as those individuals and organizations that will be served by the justice integration plan once it is implemented. The state's technology support functions, particularly the ITD, will be significantly affected by implementation of the plan, since they are key infrastructure service providers to the justice community.

This subsection details other customers that will be served by the integration plan. Customers have been broken into two categories to best describe the level of impact that the new justice technology will have in accomplishing the mission of justice stakeholders. These two categories are further described below.

1.   <u>Primary Customers</u>

Those entities that will be most affected by implementation of the integration plan are the primary customers. These entities are characterized by the significant reliance they will place on the new technology as a primary information source to support daily operations, as well as tactical and strategic decision making. The primary local and state customers are:

- NDHP.

- DOCR.

- NDAG.

- NDAG, BCI.

- State's Attorneys.

- NDJB.

- DOT.

- Office of Management and Budget (State Radio).

- NDACO.

- ITD (specific to CJIS support activities).

- Local criminal justice partners.

It is imperative that the plan implement solutions that provide these customers with the information necessary to accomplish their missions.

2.   <u>Secondary Customers</u>

Entities identified as being only partly affected by the implementation of improved justice systems in the state are categorized as secondary customers. These entities are characterized by less operational reliance on information managed by the justice systems, as opposed to the significant reliance that primary customers have on this information. This category extends to include entities that will have little direct reliance on justice systems but desire general informational access (e.g., the general public) or summary reporting data from the systems (e.g., legislative groups). Below is a list of the secondary customers:

- Game and Fish Department.

- Tribal agencies.

- Victims' advocates.

- Legislative groups.

- State ITD (efforts not related to CJIS).

- Law Enforcement Training Academy.

- Department of Health.

- North Dakota League of Cities.

- Public.

- Other nonjustice state and local agencies.

- State Legislature.

- Federal government.

- Media.

- Other states.

Of course, the ultimate customer and beneficiary of this, or any other local and statewide change initiative, is the general public. While the general public, as a system user, is interested primarily in access to justice information, the impact of justice agencies working together to effectively and efficiently collect, manage, share, and report information delivers direct public benefit.

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Identification of all customers provides the CJIS plan with a scope of desired impact. It also offers a criterion to prioritize specific components of the system in the Implementation Plan. For example, primary customers may reap the benefits and tangible results of new justice systems sooner than secondary customers.

B.   <u>VISION</u>

Based on the state integrated justice report completed by SEARCH, the state's initial grant application, interviews with state justice practitioners, and input received at the CJIS technology architecture workshop, the overall vision for CJIS can be summarized as follows:

Improve public safety by providing effective and efficient justice policies, processes, and information systems required to capture and share complete, accurate, and

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timely information in support of program operations and informed decision making across jurisdictional and organizational boundaries statewide.

Realizing this vision will require significant effort on the part of primary and secondary stake-holders, as well as strong support and cooperation among the organizations and people serving the justice community within the state of North Dakota. In addition, in order to achieve the CJIS vision, the specific business and technology goals outlined later in this section are needed to further guide and focus implementation planning. These goals, in turn, are considered in defining strategic initiatives and tactical projects that will be outlined in the final Implementation Plan deliverable to help ensure that the plan is comprehensive. EXHIBIT II-1, which follows this page, illustrates the link-age between the vision, business and enabling technology goals, and the strategic initiatives and tactical projects that will be defined during implementation planning.

C.   BUSINESS GOALS

Goals represent desired future attributes or performance characteristics in place within an organization. These goals translate the vision into a set of desired outcomes for CJIS plan implementation. The goals identified in this plan complement the existing mission, priority, and goal statements established for justice organizations. They set a target for improvement, provide direction to the implementation teams, and are an important tool for decision makers as issues surface about options, direction, and priorities. Specific goals that reflect the desired future state of justice operations are described below.

■   Ensure effective operations.

   Justice operations will be characterized by highly efficient and effective programs and processes. This can be considered as the primary business goal for the justice community. In many respects, the other business goals identified in this subsection can be described as attributes of organizational effectiveness. However, it is important that effective operations be identified as a separate goal to give it appropriate visibility and demonstrate the desire to dramatically improve the effectiveness of justice operations and programs. It is also significant to note that increases in efficiency are a major attribute of effectiveness. Effective operations and programs not only result in desired program and service outcomes, but also deliver the programs and services in the most efficient manner possible.

■   Improve decision making.

   The justice community will make high-quality decisions based on complete and accurate information. Government is continually constrained by limited human, financial, and physical resources. The existence of these constraints, coupled with the expectation that the

EXHIBIT II-1

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT

STRATEGIC AND TACTICAL LINKAGE

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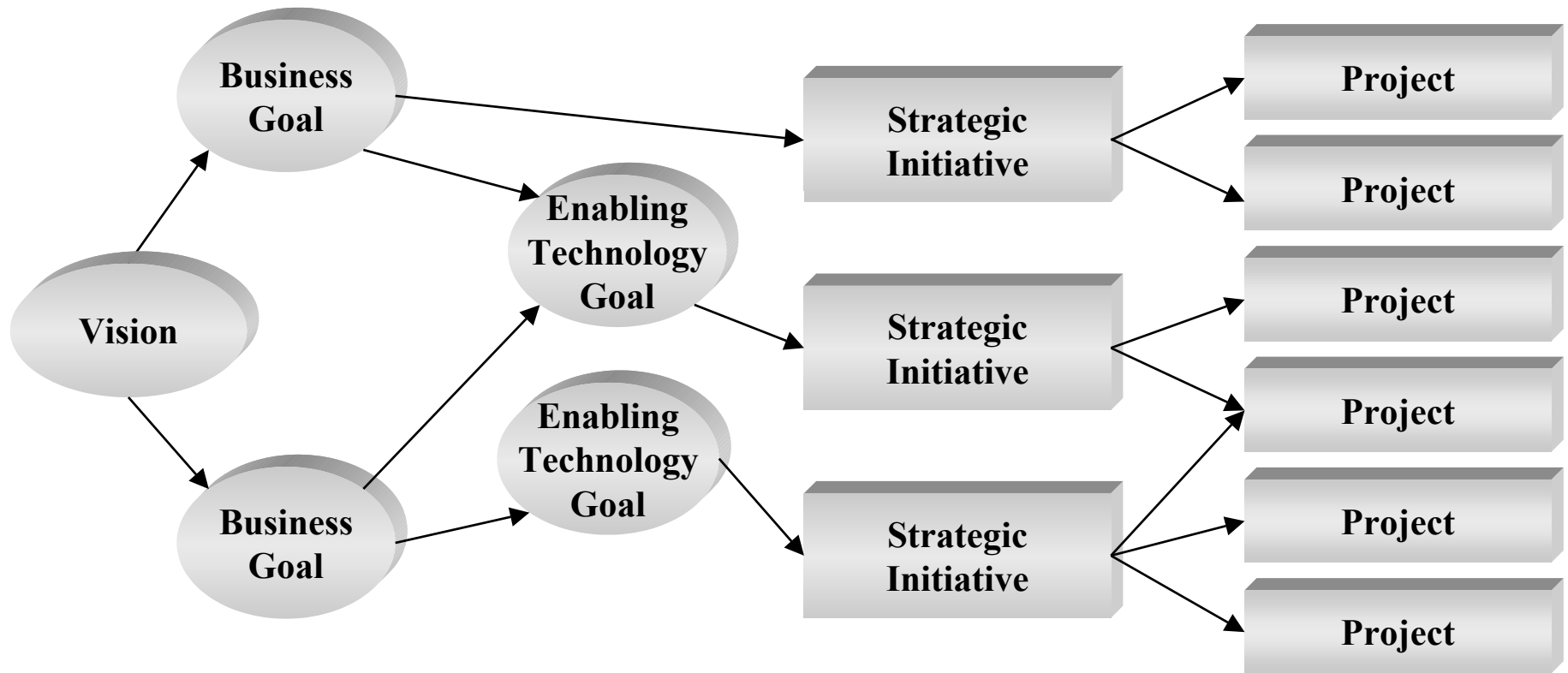
government offer high-quality services for the lowest cost possible, increases the pressure on government policy makers and operational managers to make first-rate decisions. High-quality decisions demand reliable and complete data in order to make well-informed strategic and tactical decisions that are in the best interest of public safety and the community. Limited resources must be deployed to programs with the highest value and areas with the greatest need to ensure maximum return on taxpayer investment.

- **Improve criminal justice staff safety.**

  The CJIS effort will focus on improving criminal justice staff safety. The ability to have all of the information on an individual involved with criminal justice staff provides a greater degree of safety for the staff. The CJIS efforts will consider this goal whenever a choice is made about the amount or level of detail provided to justice staff. The best person to make a decision is the staff member doing the work in the criminal justice process; therefore, CJIS should provide staff with the information they need to make well-informed decisions. In addition, they need the information to maintain their safety during their interactions with individuals involved in criminal justice processes.

- **Ensure access to information.**

  North Dakota justice partners will have easy access to the justice services and information they need. Justice partners rely on access to justice services and associated justice information. Improving access to these services increases the convenience, options, and ability for the justice community to understand public safety issues and appropriately utilize justice resources. It also enables justice organizations to more efficiently obtain the information and services they need from their justice partners as events and individuals move through the justice process.

- **Deliver timely information.**

  Justice information will be available and delivered to justice partners in a timely fashion. Information is a key asset of the justice community, and sharing that information in a timely manner is extremely important as the justice community seeks to improve public safety. This is true within a single organization (e.g., State's Attorney's Office), as well as between justice entities (e.g., law enforcement and prosecution). The failure to provide timely information exchange can have a significant impact on justice partners, affecting factors ranging from timely response to calls for service, to officer safety, to outstanding warrants, to conviction rates.

- **Implement cost-effective systems.**

  CJIS will implement systems that are cost-effective and meet the needs of the justice community. The goal of the CJIS effort is to deliver shared information to all justice users. In order to be effective, the CJIS system must be cost-effective. CJIS will seek to utilize systems developed by other states and organizations to minimize costs. In addition, CJIS will focus on mainstream technologies that offer the most cost-effective combination of supportability and common use. This goal will be tempered by factors outlined in the other business goals within this section.

- **Ensure privacy and accuracy.**[2]

  CJIS systems and information sharing will focus on clear and accurate information and maintain the privacy of CJIS information. These two components focus on the quality of and appropriate access to CJIS information. The ability to maintain the appropriate level of access to information is necessary to ensure privacy. CJIS will focus on this aspect to ensure that users accessing information are authorized to see the information and use it. In addition, the accuracy of information is important. CJIS will have clear procedures defined to validate information updates that are applied to CJIS data. The ability to share information will improve overall accuracy. Viewing the same data across the justice community will also help staff to spot errors and correct wrong information.

  * * * * * *

Realization of the preceding business goals can dramatically improve justice services and programs for the citizens of North Dakota, resulting in long-term improvements in public safety and operational effectiveness.

D. ENABLING TECHNOLOGY GOALS

Just as business goals represent desired future states or conditions in the business organization, technology goals focus the state's CJIS technology environment and direction to support the established business goals. Generally, technology goals should be perceived as enabling goals. While they do not directly deliver operational outcomes, they often provide the enabling mechanisms and opportunities to realize improvements in operational effectiveness and efficiency.

The enabling technology goals described below represent a high-level view of the desired technology environment for the CJIS community.

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[2]   This includes purge, retention, seal, and confidentiality functions.

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- Provide a standards-based environment.

  The justice technology environment will be based on a defined set of standards that apply to technology infrastructure, information, and processes. These standards should extend to include:

  - » Hardware and software infrastructure.

  - » Data.

  - » Networks.

  - » Systems development.

  - » Technology management processes and systems.

  Providing a standards-based technology environment can help improve the community's ability to quickly and effectively apply and adjust technology to business needs. In addition, adherence to industry standards can help improve the life span of the technology. It is important to remember, however, that rigid adherence to standards must be tempered by the need to effectively satisfy business needs.

- Leverage existing technology.

  Wherever possible and appropriate, existing technology will be leveraged to improve justice operations. For example, existing technology provides an opportunity to:

  - » Use current systems to share information across the justice environment through the CJIS integration backbone, thereby avoiding the cost of adding infrastructure to accomplish business functions already implemented.

  - » Examine the supporting processes to maximize the information that is exchanged between processes.

  Realization of this goal will allow justice organizations to continue to take advantage of current technologies that provide operational efficiency to justice organizations.

- Leverage new technology.

  Wherever possible and appropriate, new technology will be leveraged to improve justice operations. For example, new technology provides an opportunity to:

  - » Reshape how work is done (e.g., use of laptop computers to capture information outside of a fixed office setting).

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» Take advantage of technology to support repetitive tasks (e.g., using bar codes as property identifiers).

» Apply technology to highly specialized tasks (e.g., biometric identification).

Realization of this goal will allow justice organizations to take advantage of new technology that enables improved operational efficiency and increases the effectiveness of operations and programs.

■ <u>Ensure responsive technology support.</u>

The IT support functions and processes will be highly responsive to business and user needs. Responsive technology support functions will:

» Ensure that problems are tracked and resolved in a timely manner.

» Provide applications, tools, and products that respond to user needs.

» Maintain a reliable and available technology infrastructure.

» Ensure that users receive the support they need for enterprise and departmental applications.

» Ensure that technology support is responsive to prioritized business needs.

Accomplishing this goal will help ensure that justice organizations are, in turn, able to be responsive to their customers' needs and provide stable and reliable processes and services to local and statewide users.

■ <u>Ensure system flexibility.</u>

The technology infrastructure and solutions developed for the justice community will be designed for maximum flexibility. This flexibility will improve the ability to adapt technology in response to needed changes in justice programs and operations and position the state to take advantage of new technologies. System flexibility should extend to include:

» Hardware and software infrastructure.

» Network infrastructure.

» Enterprise and departmental applications.

» Technology support.

As new hardware and software technology is planned and implemented, the flexibility and adaptability of the solution must be a significant consideration. Of course, there will always

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be trade-offs between flexibility and other system characteristics (e.g., performance), but these trade-offs should be consciously considered.

■ <u>Provide information-sharing facilities.</u>

Justice organizations will be able to quickly share complete and accurate information. Access to complete and timely information is critical to justice operations. Technology must provide the ability to:

» Share information as soon as it is captured.

» Make that information widely available within the organization capturing the data.

» Share that information quickly and completely with other justice organizations.

The ability to share complete information can enable improved efficiency in areas such as reducing redundant data capture and the amount of time spent searching for missing information. Improved outcomes (e.g., increased warrant clearances, increased effectiveness of offender programs) can also be supported through these information-sharing facilities.

■ <u>Ensure information security.</u>

Justice information will be properly secured to ensure maintenance of information privacy rights of individuals and protection of other confidential information captured in the justice process (e.g., confidential information on investigations in progress, juvenile information). Security will include:

» Definition of end-to-end security standards and architecture.

» Implementation of security at the network, system, database, and application levels.

» Implementation of appropriate security processes and procedures.

» Clear roles and responsibilities regarding security management.

■ <u>Capture business performance data.</u>

Wherever possible, information systems will be designed to capture business performance data as a by-product of other automated processes (e.g., applications). Much of this business performance information is either a summarization of operational data already captured in the system or the combination and comparison of data already captured. Data must be captured to support decision making and analysis concerning:

» Business activity.

» Resource utilization and performance.

»   Program effectiveness.

To make good business decisions, justice organizations must have business performance information available that provides insight into program and service efficiency and effectiveness.

- <u>Minimize complexity.</u>

  The technology environment implemented to support the justice community will include the minimum number of technologies required to meet business needs. This focus on minimizing the number of supported technologies should include:

  »   Hardware environments.

  »   Networking.

  »   Operating systems.

  »   Databases.

  »   Development tools and environments.

  It is critical that the technology organization focus its energy on a limited set of technologies to help ensure that it can maintain currency, competency, architectural coherence, and responsive support for the justice community's technical environment.

<p align="center">*   *   *   *   *   *</p>

Accomplishing the preceding technology goals can support realization of the desired business goals to dramatically improve justice services and programs for the citizens of North Dakota, resulting in long-term improvements in public safety and operational efficiency.

III. BUSINESS ARCHITECTURE

III.   BUSINESS ARCHITECTURE

To meet the needs, mission, and goals of CJIS, the stakeholders must organize for change and consider taking advantage of information access and sharing opportunities in day-to-day operations. This section discusses the governance structure required to manage implementation of the CJIS plan and the potential future automated information access and exchanges that can be delivered through an improved technology environment.

A.   GOVERNANCE

Implementation of the CJIS plan will require focused governance at the strategic, policy, and tactical levels. In addition, the governance structure specific to CJIS must work effectively with the existing state and local governance entities responsible for justice and technology. EXHIBIT III-1, which follows this page, provides an overview of the governance environment for CJIS. The shaded boxes indicate governance and management organizations that already exist. The roles of the various existing and proposed new governance entities are discussed below.

1.   Existing CJIS Governance Entities

- *CJIS Board*. The three members of North Dakota's CJIS Board provide direction for the CJIS effort. As the overall policy and funding decision-making body for CJIS, the board will play a key role in approving and enabling implementation of the CJIS plan. In addition, the CJIS Board should play an active role as CJIS advocates. This board consists of the Chief Justice, Deputy Attorney General, and Chief Information Officer as the representative of the Governor.

- *CJIS Executive Committee*. The Executive Committee is the tactical governance committee for the CJIS effort. It provides recommendations to the CJIS Board on strategic public safety issues and initiatives. Its membership includes representatives from all justice organizations in the state. For purposes of the CJIS plan, its primary focus is on the plan's impact and benefit to justice programs, the CJIS project, and IT services. However, it is reasonable to expect the board to look to the Executive Committee for overall perspective and recommendations on the entire CJIS plan. In addition, the Executive Committee ensures that the projects meet the information and management needs of the justice community in a manner consistent with justice program direction, goals, and priorities within the state and as part of the statewide justice enterprise. The Executive Committee fulfills this responsibility by:

  » Being knowledgeable about the CJIS plan, its projects, strategy, priorities, and status.

EXHIBIT III-1

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT

CJIS GOVERNANCE STRUCTURE
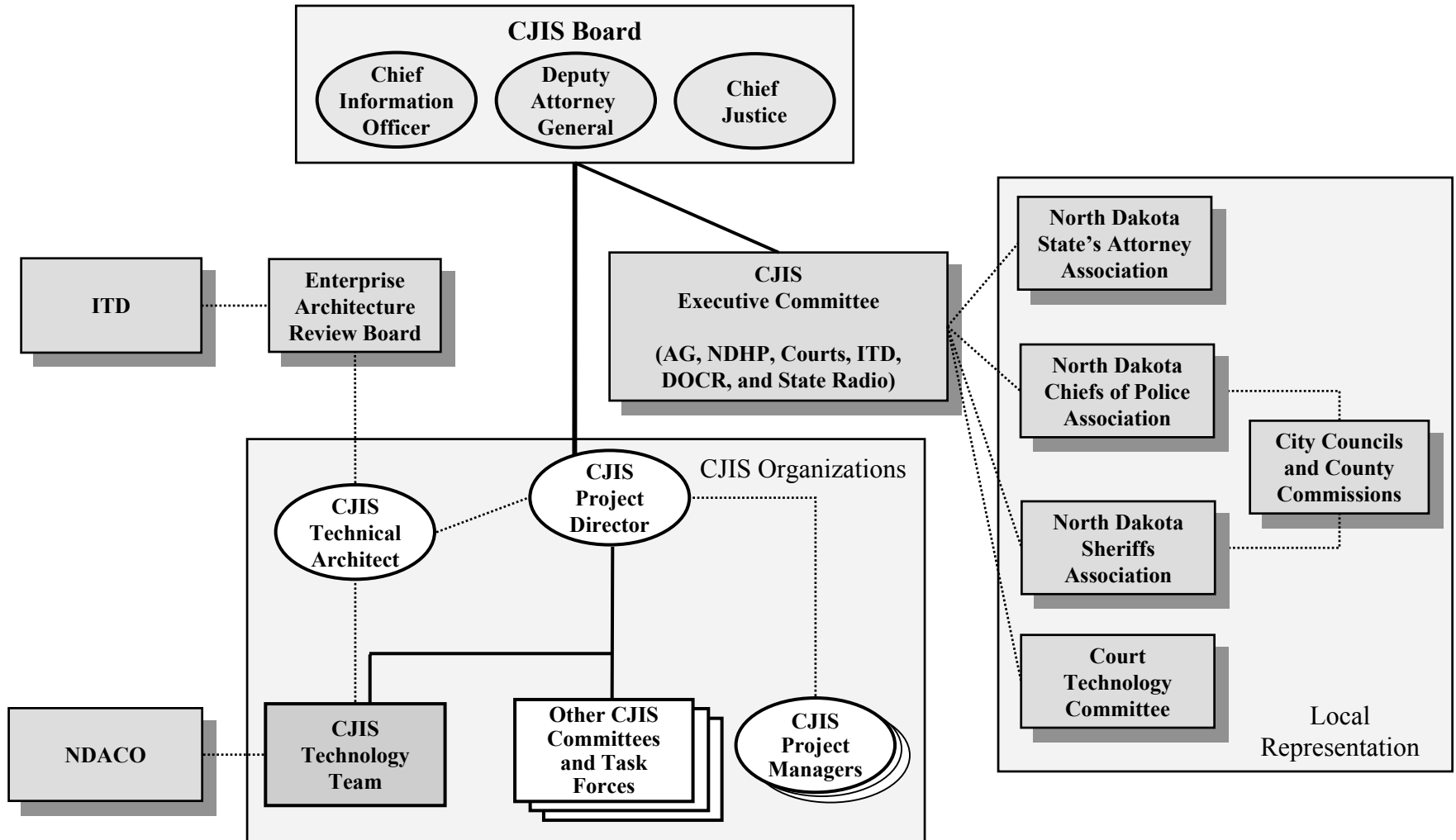
NOTE: Shaded boxes represent existing entities.

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» Providing advocacy for the plan within the members' respective organizations and stakeholder groups, as well as outside their specific organizations.

» Clarifying and establishing appropriate policy and priorities relative to plan implementation.

» Recommending approval of major changes in scope, direction, or budget.

» Making "go/no-go" decision at major checkpoints.

» Working to remove obstacles inhibiting plan progress.

» Resolving issues that cannot be resolved at lower levels.

» Making balanced decisions in the best interest of the overall justice community.

2.   Existing Non-CJIS Governance Entities

- *North Dakota State's Attorney Association (NDSAA)*. NDSAA represents the interests of the State's Attorneys on the CJIS Executive Committee. NDSAA is responsible for communicating CJIS information to its membership and facilitating discussions on CJIS project issues related to the interests of the State's Attorneys.

- *North Dakota Chiefs of Police Association (NDCPA)*. NDCPA represents the interests of the Chiefs of Police on the CJIS Executive Committee. NDCPA is responsible for communicating CJIS information to its membership and facilitating discussions on CJIS project issues related to the interests of the Chiefs of Police.

- *North Dakota Sheriffs Association (NDSA)*. NDSA represents the interests of the Sheriffs on the CJIS Executive Committee. NDSA is responsible for communicating CJIS information to its membership and facilitating discussions on CJIS project issues related to the interests of the Sheriffs.

- *Court Technology Committee*. The Court Technology Committee provides input and guidance to the Judicial Branch. This group is represented by the Court Representative.

- *City Councils and County Commissions*. The city councils (or other governance equivalents) and county commissions are responsible for the governance of local justice partners. In general, these non-CJIS governance entities are represented by the their respective associations.

- *North Dakota Association of Counties*. NDACO represents the counties on several state efforts, including CJIS. In addition, NDACO is a criminal justice information service provider. From a service perspective, it provides network and application services to counties, which extends into justice organizations.

- *Enterprise Architecture Review Board.*[3] This is a working group which meets quarterly to discuss technology issues and their impact on state standards, policies, and guidelines, as well as to review, evaluate, discuss, and provide input on proposed standards, policies, or guidelines.   The decisions made affect the direction of technology in North Dakota. EXHIBIT III-2, which follows this page, provides additional information about this group.

- *Information Technology Department.* ITD is represented in the governance structure based on its role as a provider of CJIS services. This is an informal representation since ITD is already represented on the Executive Committee.

It is important that these groups are knowledgeable about and support the CJIS plan. Therefore, they must be kept fully abreast of CJIS plans and status and involved appropriately in CJIS decisions that affect them. Effective communication, cooperation, and coordination with these groups will be critical to managing expectations, garnering support, and maintaining commitment to the plan and its implementation.

3.   Future CJIS-Specific Governance Staff

- *CJIS Project Director*. The project director is responsible for providing operational coordination and leadership for overall CJIS plan implementation. Responsibilities include:

  » Coordinates with project managers responsible for specific projects in the CJIS plan to ensure that interdependencies between projects are understood and that activities and direction are consistent with the CJIS plan.

  » Is intimately familiar with the CJIS plan and acts as an internal and external advocate for plan implementation.

  » Advises the Executive Committee on CJIS project status and issues.

  » Recommends any significant changes in strategy or direction to the Executive Committee.

  » Leads the annual update of the CJIS plan.

  » Provides and manages overall project management systems that establish management and reporting requirements for CJIS projects. This includes, at a minimum:

    - Status reporting.

    - Project schedules and work plans.

    - Budget and expenditure tracking and forecasting.

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[3]   This group was formerly called the ITD Standards and Policy (S&P) Review Group.

EXHIBIT III-2

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT

NORTH DAKOTA IT STANDARDS DEVELOPMENT

North Dakota's methods for maintaining standards is defined and published on the state Web site. The following information is extracted from that Web site.

S&P Review Group

N.D.C.C. § 54-44.2 directs ITD with input from state agencies and institutions to develop statewide IT standards, policies, and guidelines. Each executive branch state agency and institution must comply with these standards, policies, and guidelines with the exception of the research or academic section/Division of Higher Education or an agency that applies for and is granted an exception to standards.

To facilitate the cooperative effort in the standards, policies and guideline development process, a S&P Review Group has been organized. Each agency is invited to appoint a representative to participate who will serve as the spokesperson of the agency's technological needs and requirements in reference to the statewide standards development process. It is suggested the Chief Information Technology Coordinator be the designed representative. This is to create a group of individuals who may represent the agency's total technology views and can present and discuss information and suggestions that will affect the agency's IT policy and directives. It is the agency representative's responsibility to gather appropriate information from within the agency regarding the IT standard to be reviewed and discussed. The S&P group is not intended to merely be a gathering of technology coordinators. It is to be a working group which meets quarterly to discuss technology issues and their impact on state standards, policies, and guidelines, as well as to review, evaluate, discuss, and provide input on proposed standards, policies, or guidelines. The decisions made affect the direction of technology in North Dakota.

S&P Review Group Mission:

> "To provide information in the development of statewide standards, policies, and guidelines through the review and evaluation of such standards, policies, and guidelines to help shape the coordinated direction of technology in North Dakota."

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- Project schedule and work plan status and forecasting.

- Issue management.

- Change management.

» Provides status reporting to the Executive Committee and other groups, as required.

» Facilitates resolution of issues, particularly those that have interproject impacts.

» Represents the state on appropriate CJIS-related activities and groups.

■ *CJIS Technical Architect.* The technical architect is responsible for ensuring that strategies, projects, and activities are consistent with the technical vision for CJIS. The CJIS technical architect is directly accountable to ITD and indirectly to the CJIS project director. In meeting responsibilities, the technical architect will:

» Participate in CJIS projects, as needed.

» Lead the detailed design of the CJIS technology architecture to move the overall architecture from concept through physical design.

» Evaluate project plans, direction, and designs for compliance with the CJIS architectures and vision.

» Ensure that each CJIS project maintains compliance with state technology architectures as they are designed.

» Recommend changes needed in technical design or approach to the project director and Executive Committee.

» Chair and manage the agenda for the CJIS Technology Team.

■ *CJIS Technology Team.* The CJIS Technology Team is accountable to the Executive Committee. It is responsible for dealing with specific technical issues as directed by the Executive Committee. The committee will consist of appropriate technical representatives from justice organization technical functions. It is further responsible for establishing the standards and stewardship for information to be shared or exchanged among justice partners within and outside North Dakota. In addition, this group is responsible for establishing security rules around the data. CJIS Standards will generally conform to the state standards unless specific a CJIS business case for deviation from standard is made by the Technology Team through normal state processes.

■ *Other CJIS Ad Hoc Committees and Task Forces.* As CJIS plan implementation progresses, there will be the need for additional groups that focus on particular areas relevant to plan implementation. It is expected, for example, as the state works on the specifics of process redesign enabled by automated information exchange that work groups will be formed to identify in detail the particular changes to be implemented in affected organizations on a

process-by-process (or exchange type-by-exchange type) basis. An example effort that may require a CJIS task force may be the effort to build a matrix of charging and disposition codes.

■ *CJIS Project Managers*. Specific projects within the CJIS plan will require project managers. These project managers will lead individual projects and be responsible for the schedule, quality, and budget relative to the project(s) they manage. They will be accountable to the Executive Committee through the CJIS project director.

As CJIS plan implementation begins, a critical first step will be for these governance groups to establish charter statements that fully articulate the roles and responsibilities of each group and its membership.

B.   FUTURE INFORMATION EXCHANGES

Building on the current information exchanges identified in the Requirements Document, this subsection describes how information exchanges will take place once the CJIS plan is fully implemented. Since a primary goal of CJIS is to facilitate the electronic sharing of information between justice entities and systems, and given the constrained time frame and resources allocated to process analysis, the business process modeling efforts in North Dakota have focused on identifying and automating the exchange and sharing of information electronically. Refining internal business processes with the various stakeholder organizations has not been the focus of this effort. The specific determination of detailed process improvements and their impact on organizational roles and responsibilities will be dealt with as part of appropriate tactical projects within the CJIS plan. In addition, it is important to understand that the ability to access and share information between justice partners will evolve over time, providing incremental benefit, until the vision for comprehensive information sharing can be completed.

1.   Approach

In addition to the specific information exchanges presented in the Requirements Document report, experience with other jurisdictions' integration and information-sharing plans and priorities were applied to establish a vision for information exchange automation. While additional information exchanges exist within the criminal justice process, the exchanges identified in this document were deemed to represent the exchanges with the highest potential value. Within that context:

■ Information exchanges were grouped by Level 0 processes and then organized by subordinate Level 1 processes. The Level 0 and Level 1 process structures are outlined in subsection V.B of the Requirements Document.

- A likely method was then defined for each exchange. These methods are:

  » *Push/Pull*. This method either sends information to, or retrieves information from, another system. The data is then integrated into the receiving system. These exchanges are based on clearly defined business rules for exchange and are highly timing-dependent.

  » *Publish/Query*. This method allows access to information in other systems but does not retrieve the data for use in the inquiring system. This is generally the simplest form of information access.

  » *Subscription/Notification*. This method provides facilities that inform people when specified sets of events occur (e.g., a probation officer wants to know whether a certain individual comes in contact with the justice system, such as booking into jail, given a traffic citation). This method can be highly complex as automated rules are established regarding what notifications are desired, to whom, and under what conditions.

  » *Other*. This is a miscellaneous category for forms of communication (e.g., fingerprint cards) that may not be automated and the current method of communication may remain the most cost-effective.

- Each exchange was scored based on two factors described in the table below. Note that an "N/A" indicates that automation would probably not be contemplated for this exchange.

Factor	Description	Score	Value
Benefit	Assesses how beneficial the exchange is to the criminal justice community and its stakeholders from an overall criminal justice and public safety perspective.	High	3
		Medium	2
		Low	1
		N/A	0
Complexity	Assesses the comparative technical difficulty of automating the exchange. Complexity was evaluated based on the exchange method (defined previously), the number of potential different systems affected, and the ability to influence the automation of non-criminal justice systems.	High	1
		Medium	2
		Low	3
	The least complex exchanges tend to be based on the more simplistic exchange methods (i.e., Publish/Query) and affect one, or a very few, systems. The most complex exchanges tend to involve the more difficult exchange methods (e.g., Push/Pull, Subscription/Notification) and/or may involve a number of systems on the sending or receiving end of the exchange. Therefore, exchanges with law enforcement, local jail/detention, state/local dispatch systems tend to be more complex because there are multiple systems within the state that must operate cooperatively.	N/A	0

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- A rating of 0 to 9 was then established for each exchange. The rating was calculated by multiplying the benefit score value by the complexity score value. For example, an exchange with a high benefit (value of 3) and low complexity (value of 3) received a rating of 9. Correspondingly, an exchange with a low benefit (value of 1) and high complexity (value of 1) received a rating of 1. This allowed identification of "quick hit" exchanges that are beneficial and could be provided without significant technical difficulty to provide near-term return benefits from the CJIS investment.

- For summary reporting purposes, the ratings were then grouped into three types, as outlined in the table below, to provide an overall perspective.

Type	Description	Rating
Type A	High benefit/low complexity exchanges.	9
Type B	High benefit/medium complexity, medium benefit/low complexity, medium benefit/medium complexity exchanges.	4–6
Type C	High benefit/high complexity, medium benefit/high complexity, low benefit/low complexity, low benefit/medium complexity, low benefit/high complexity exchanges.	1–3
N/A	Not rated.	0

EXHIBIT III-3, which follows this page, summarizes information exchange counts by major process and type. EXHIBIT III-4, which follows EXHIBIT III-3, provides summary views of the exchanges organized by method and process, as well as by rating type and process. A detailed view for all Level 1 processes is provided in APPENDIX D, and APPENDICES E through L provide detailed exchanges and ratings for the event reporting, investigation, arrest, detention, filing, adjudication, disposition, and other program processes, respectively.

2.   Conclusions and Strategies

Based on the approach described in the preceding discussion, a number of conclusions and strategies emerge. The conclusions and strategies drawn from the exhibits and appendices are outlined below.

- ***Information exchanges must operate at both intracounty and intrastate levels.***

  Although the majority of information exchanges typically take place between criminal justice partners within a county or city, the design and approach for integration must accommodate the ability to establish and share individual, incident, and case data throughout the state.

EXHIBIT III-3
Page 1 of 2

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT
SUMMARY OF INFORMATION EXCHANGES

Process	Method of Exchange			
	Push/Pull	**Publish/Query**	**Subscription/ Notification**	**Other**
Event Reporting				
Type A		5		
Type B	1		1	
Type C	11			
Total	**12**	**5**	**1**	
Investigation				
Type A		5		
Type B	1	3		
Type C	7	1	5	
Total	**8**	**9**	**5**	
Arrest				
N/A				2
Type A		1		
Type B	4			
Type C	10		3	
Total	**14**	**1**	**3**	**2**
Detention				
Type A		1		
Type B	1	4		
Type C	11		5	
Total	**12**	**5**	**5**	

LEGEND:
  Type A: Rating = 9. High Benefit/Low Complexity.
  Type B: Rating = 4-6. High Benefit/Medium Complexity, Medium Benefit/Low Complexity, Medium Benefit/Medium Complexity.
  Type C: Rating = 1-3. High Benefit/High Complexity, Medium Benefit/High Complexity, Low Benefit/Low Complexity, Low Benefit/Medium Complexity,
              Low Benefit/High Complexity.
  N/A: Not rated.

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EXHIBIT III-3
Page 2 of 2

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT
SUMMARY OF INFORMATION EXCHANGES

Process		Method of Exchange			
		Push/Pull	**Publish/Query**	**Subscription/ Notification**	**Other**
Filing					
	Type A		3		
	Type B	10	4		
	Type C	3	1	1	
	Total	**13**	**8**	**1**	
Adjudication					
	N/A				1
	Type A		3	2	
	Type B	13	3		
	Type C	24	3	8	
	Total	**37**	**9**	**10**	**1**
Disposition					
	Type A		9		
	Type B	16	12		
	Type C	11	2	15	
	Total	**27**	**23**	**15**	
Other Programs					
	Type A		2		
	Type B	7	1		
	Type C	10		4	
	Total	**17**	**3**	**4**	
Grand Total for All Processes		*140*	*63*	*44*	*3*

LEGEND:
  Type A: Rating = 9. High Benefit/Low Complexity.
  Type B: Rating = 4-6. High Benefit/Medium Complexity, Medium Benefit/Low Complexity, Medium Benefit/Medium Complexity.
  Type C: Rating = 1-3. High Benefit/High Complexity, Medium Benefit/High Complexity, Low Benefit/Low Complexity, Low Benefit/Medium Complexity,
                Low Benefit/High Complexity.
  N/A: Not rated.

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EXHIBIT III-4

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT

SUMMARY OF INFORMATION EXCHANGES BY METHOD AND TYPE

Information Exchanges by Method and Process

Method	Event Reporting Count	Event Reporting Percentage	Investigation Count	Investigation Percentage	Arrest Count	Arrest Percentage	Detention Count	Detention Percentage
Push/Pull	12	66.7%	8	36.4%	14	70.0%	12	54.5%
Publish/Query	5	27.8%	9	40.9%	1	5.0%	5	22.7%
Subscription/Notification	1	5.6%	5	22.7%	3	15.0%	5	22.7%
Other	0	0.0%	0	0.0%	2	10.0%	0	0.0%
TOTAL	**18**	**100.0%**	**22**	**100.0%**	**20**	**100.0%**	**22**	**100.0%**

Method	Filing Count	Filing Percentage	Disposition Count	Disposition Percentage	Adjudication Count	Adjudication Percentage	Other Programs Count	Other Programs Percentage
Push/Pull	14	63.6%	26	41.3%	38	65.5%	17	70.8%
Publish/Query	6	27.3%	23	36.5%	11	19.0%	3	12.5%
Subscription/Notification	1	4.5%	14	22.2%	8	13.8%	4	16.7%
Other	1	4.5%	0	0.0%	1	1.7%	0	0.0%
TOTAL	**22**	**100.0%**	**63**	**100.0%**	**58**	**100.0%**	**24**	**100.0%**

Method	Total by Type Count	Total by Type Percentage
Push/Pull	141	56.6%
Publish/Query	63	25.3%
Subscription/Notification	41	16.5%
Other	4	1.6%
TOTAL	**249**	**100.0%**

Information Exchanges by Rating Type and Process

Rating	Event Reporting Count	Event Reporting Percentage	Investigation Count	Investigation Percentage	Arrest Count	Arrest Percentage	Detention Count	Detention Percentage
Type A (Rating of 9)	5	27.8%	5	22.7%	1	5.0%	1	4.5%
Type B (Rating of 4–6)	2	11.1%	4	18.2%	4	20.0%	5	22.7%
Type C (Rating of 1–3)	11	61.1%	13	59.1%	13	65.0%	16	72.7%
N/A (Rating of 0)	0	0.0%	0	0.0%	2	10.0%	0	0.0%
TOTAL	**18**	**100.0%**	**22**	**100.0%**	**20**	**100.0%**	**22**	**100.0%**

Rating	Filing Count	Filing Percentage	Disposition Count	Disposition Percentage	Adjudication Count	Adjudication Percentage	Other Programs Count	Other Programs Percentage
Type A (Rating of 9)	3	13.6%	9	14.3%	4	6.9%	2	8.3%
Type B (Rating of 4–6)	11	50.0%	28	44.4%	23	39.7%	8	33.3%
Type C (Rating of 1–3)	7	31.8%	26	41.3%	30	51.7%	14	58.3%
N/A (Rating of 0)	1	4.5%	0	0.0%	1	1.7%	0	0.0%
TOTAL	**22**	**100.0%**	**63**	**100.0%**	**58**	**100.0%**	**24**	**100.0%**

Rating	Total by Type Count	Total by Type Percentage
Type A (Rating of 9)	30	12.0%
Type B (Rating of 4–6)	85	34.1%
Type C (Rating of 1–3)	130	52.2%
N/A (Rating of 0)	4	1.6%
TOTAL	**249**	**100.0%**

- ***The future processes for information exchanges will create an environment where information is provided, regardless of method, from the organizational system responsible for capturing and managing that data.***

  Currently, for example, a variety of organizations provide police report paper copies to requestors. In the future, police reports created in one city will be provided only from that city's law enforcement records system (as the originator and owner of the police report data). The future exchange process will serve to ensure that up-to-date information is available and provided from the responsible source. This will mean that operational systems must be robust enough to capture the information needed externally, as well as internally. Over the lifetime of plan implementation, this will require enhancement or replacement of some legacy systems as well as the prudent provision of technology to smaller organizations if the full benefits of information sharing are to be realized.

- ***The timing for capture and exchange of information and the 24/7 availability of critical information systems is crucial.***

  The exchange methods identified in APPENDICES E through L presume the timely capture and exchange of data. If information provided to others is to be useful, it must be captured in a timely manner. For example, if a detention release order is to be pushed electronically from the court to the jail, the information must be captured and pushed quickly so the jail has the order and its conditions when the individual returns for release. This also means that 24/7 operational availability of systems will be crucial as criminal justice users seek to access and exchange information in a timely manner. In addition, Push/Pull and Subscription/Notification exchanges will require embedded business rules in the systems that expect the exchanges to take place at defined points in the business process where certain preconditions regarding the event have been met. This can involve a highly complex set of rules and relationships, making the timing of the exchange extremely important.

- ***The publishing of justice data accompanied by appropriate access tools can provide near-term benefits.***

  Publish/Query access methods account for 25.2 percent of the information exchanges. Publish/Query access is particularly important in the investigation process, during which information is being gathered on an incident or case, and in the disposition and adjudication processes, during which information on offenders is continually being examined, monitored, and reported. This indicates that benefit could be derived in the near term by publication of existing criminal justice system data accompanied by easy access to that information for all criminal justice partners.

- ***The use of publishing and query capabilities can provide interim benefits toward the longer-term efforts to design and develop full Push/Pull and Subscription/Notification capabilities.***

  Subscription/Notification access methods account for 17.6 percent of the information exchanges. Most of these exchanges tend to have high complexity associated with embedding business rules in the automated systems. Internal revisions to business processes that instruct users to access the published data discussed in the preceding item (rather than waiting for paper or telephone responses, for example) could also provide near-term benefits until more sophisticated Subscription/Notification systems can be put in place.

- ***Minimizing the number of disparate systems that must operate in this integrated environment can reduce the complexity of integration and information sharing.***

  Reducing the number of different systems that must interact and work cooperatively can help to decrease the rated complexity levels noted in the appendices. For example, if a common local jail/detention system can be implemented and the number of disparate law enforcement records systems minimized, there are fewer systems that must be modified to work within the future integration and information-sharing technical environment.

- ***Push/Pull and Subscription/Notification exchanges are the most complex information exchanges and will require the longest time to design and implement.***

  Push/Pull and Subscription/Notification exchanges represent 73.6 percent of the exchanges and a significant portion of the overall complexity. Therefore, these exchange types received lower rating scores because of their higher complexity (i.e., Type B and Type C categories). These exchanges will require specific definition of the following as relevant tactical projects are undertaken at the state and local levels:

  » The precise information to be exchanged.

  » A common set of business rules that define the context of the data provided and the conditions under which data will be sent and received.

  » An agreed-upon and common exchange architecture.

  These exchanges require significant effort for detailed design and physical implementation and will be highly dependent on established statewide standards in order to ensure multi-jurisdictional exchanges based on common and known sets of business rules.

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Leveraging the strategies and opportunities for delivering near-term results within the context of a long-term plan and architecture can help solidify support for the integration plan, demonstrate the benefits of integration to decision makers in real terms, and provide quick improvements that allow incremental experience and measured progress toward realizing the state's vision for integration.

The business architecture presented in this section is a critical foundational layer in managing and driving the desired technology improvements. The governance subsection described the key management entities that need to be in place for plan implementation. In addition, the process exchange models provide the basis from which the specific definition of data, information exchanges, and detailed work flow and work process improvements can be developed during the course of the CJIS implementation plan, enabled through changes and improvements in the technology environment.

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IV. <u>TECHNOLOGY ARCHITECTURE OVERVIEW</u>

IV.   TECHNOLOGY ARCHITECTURE OVERVIEW

An enterprisewide architecture consists of logically consistent principles that guide the engineering of an organization's ISs and technology infrastructure. North Dakota intends to move to a common technology model that will establish some coordinated and common services that can better respond to and support the business needs of the state. This section presents an overview of the role and structure of the CJIS architecture, sets forth the principles that direct the technical and management components of the future environment, and outlines the manner in which the technology architecture will be discussed.

A.   INTRODUCTION

A complete enterprise architecture is a complex compilation of hardware, software, telecommunications, organizations, policies, and procedures. Many organizations, including ITD and state organizations, maintain a de facto architecture that evolves as technology decisions and acquisitions are made over the years. The size, shape, complexity, and capabilities of the current technology environment in North Dakota are the result of a long series of coordinated and less-coordinated technology decisions.

This section sets the stage for the more detailed CJIS technology architecture discussion in subsequent sections of this document. It provides technical and business unit managers within the CJIS community with a foundation and structure for understanding and implementing the future CJIS that:

■   Defines a set of business-based principles for making technology decisions.

■   Outlines the desired qualities for CJIS.

■   Provides a framework and structure for understanding and communicating the major components of the CJIS technology architecture.

This framework is discussed in more detail below.

B.   TECHNOLOGY PRINCIPLES

North Dakota has adopted a series of principles to direct its management of technology for CJIS. These principles are derived from the justice community's CJIS vision, business goals, and enabling technology goals. They guide decisions about what information technologies will be used and how

they will be employed and serve to shape the technology decisions that are made in realizing the CJIS vision. CJIS technology principles include:

- **CJIS Infrastructure**

  The design will make use of North Dakota's general IT and telecommunications infrastructure. This includes the capabilities of ITD and other organizations, such as NDACO, wherever practical.

- **Commercial Off-the-Shelf (COTS) Software and Hardware**

  Justice agencies will minimize development and customization by utilizing commercially available products. This will simplify the project and help control costs.

- **Existing Production Industry-Standard Protocols and Open Systems Technology**

  The design will be based upon current and developing industry standards to ensure compatibility with future technology. This includes the underlying messaging environment, as well as the application software and operating systems.

- **Messaging**

  Justice entities will share information through standard messaging structures via the network and application infrastructure and, as the evolution of the environment occurs, the messaging infrastructure itself. These messaging structures are to be based on XML and American National Standards Institute (ANSI) electronic data interchange (EDI) messaging standards and a COTS messaging infrastructure solution.

- **Data Standards**

  Data will be standardized in format and content for all information exchanges between agencies. Cross-maps will have to be developed in order to facilitate the transfer of information between systems and locations statewide and into and out of a central repository, index, or warehouse. The statewide data model for information exchange; standardization of data definitions; and the state's implementation, access, interoperability, and communication must be supported across justice agencies to provide improved quality and consistency of data and enhance the overall effectiveness of implemented systems.

- **Standard Network**

  A common network environment using industry standards will interconnect all workstations, computers, and communicating devices. Evolving slightly from the current network environment, CJIS will operate using standard TCP/IP network protocols.

- **Scalability**

  The design must be able to migrate or grow over time as new requirements are identified and defined and transaction volumes increase. This includes support of the process of introducing new extensions and software releases into existing operational environments.

- **Automated Operation**

  The design must provide for automated operations of systems and information exchanges where feasible. The primary focus in this area should be on the supportability of the operations within the CJIS environment. This includes processes at the local, county, and state levels.

- **Technological Compliance**

  Systems and technology infrastructure implemented by CJIS agencies will be compliant with the architecture even though there may be some additional cost for architectural compliance on initial implementation. Technological deviations may create a significant impact on efforts during implementation and should be avoided.

- **Architecture Exceptions**

  Architecture exceptions will be handled on a case-by-case basis, with emphasis on the cost of noncompliance, total cost of ownership (TCO), and the business case for deviation presented by the justice organizations. The burden of cost justification for exceptions will be the responsibility of the requesting organization and must consider long-term architecture impact, as well as effects that will be passed along to CJIS partners.

- **Standards**

  The standards and technology choices will be based on vendor-neutral standards where available and able to be implemented.

- ■ Data Types

  The architecture and implemented systems must address the management of all forms of information (data, text, voice, image) in an integrated manner.

- ■ Future Requirements

  The systems should be developed in such a way that recognizes the need for future changes to functional and technology requirements even if the development cost is increased. The long-range initiatives that will be outlined during implementation must be paramount considerations during early efforts.

- ■ Data Management

  Data is a corporate asset and does not belong to a particular business unit or individual. Data will be managed and stored as closely as practicable to the person/organizational unit that uses it. CJIS staff must acknowledge this principle early in the implementation.

- ■ Vendor Independence or Interchangeability

  Technology components will be implemented to allow for the option of exchanging vendor products with minimal disruption to the environment. This will remain an important principle as applications are hosted on like platforms for easier support and operations.

- ■ Effort Synchronization

  The efforts that will occur during implementation will be closely managed to synchronize with state projects and related CJIS projects.

Based upon these principles and the goals outlined in Section II, the technology architecture described in subsequent sections of this document is intended to provide a blueprint for building the technology infrastructure necessary to fulfill North Dakota's needs. The development of technical plans and product decisions requires considerations of these principles and of the key qualities and attributes that need to be built into an architecture plan. These key qualities must be balanced and effective in the chosen approach. They are summarized in Figure 1 and are outlined below.
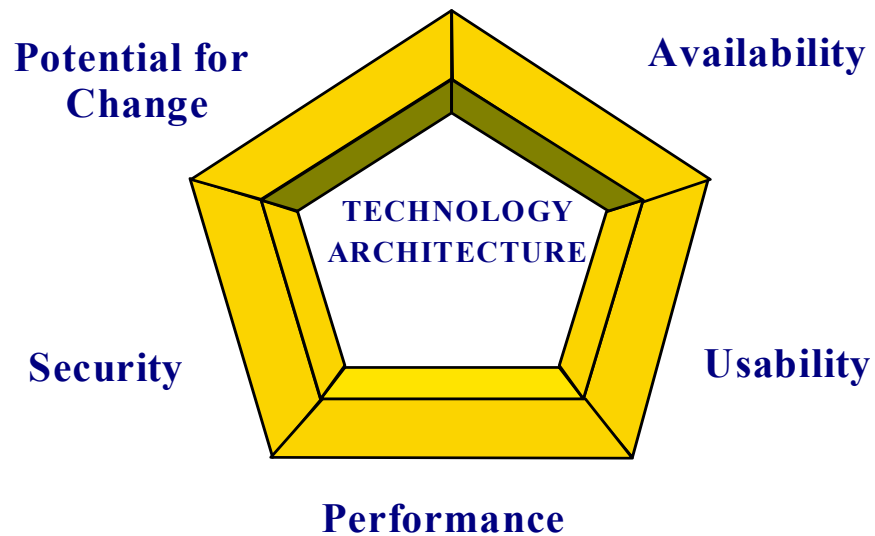
Figure 1: Balanced Technology Architecture Qualities

■ Availability includes:

» Reliable components.

» Error detection and recovery.

» Fault tolerance.

» Reparability.

» Preventive maintenance.

» Distribution, installation, and activation.

■ Usability considers:

» Usability assurance and evaluation.

» Requirements capture and analysis.

» Ergonomics.

» Consistent user interface.

» Support services, training, and documentation.

■ Performance engineering can be viewed from three aspects:

» Performance predictability.

» Comparability, benchmarks, indexes, etc.

» Manageability, control, and monitoring.

■ Security perspectives are concerned with:

» Confidentiality – information is disclosed only to users authorized to access it.

» Integrity – information is modified by authorized users and only in approved ways.

» Availability – use of systems cannot be maliciously denied to authorized users.

» Accountability – users are accountable for their security-related actions.

■ Finally, Potential for Change involves the ability to support evolution for meeting new demands of the enterprise and the ability to take advantage of new technology and processes that enhance IT opportunities. The rate of change for agencies and government businesses ensures that open and flexible designs will allow for changes and reactions to market drivers.

C. TECHNOLOGY ARCHITECTURE FRAMEWORK

EXHIBIT IV-1, which follows this page, provides a framework for discussion of the CJIS technology architecture presented in subsequent sections and follows the principles previously outlined. The overall framework presented in EXHIBIT IV-1 is divided into three primary layers:

■ Application, Information, and Integration

This layer of the schema is the most visible to the organization and includes:

» *Application Architecture* – Software that supports all CJIS business functions and activities.

» *Information Architecture* – The data that is compiled and manipulated in support of business activities within the CJIS environment. This layer was discussed in terms of future information exchanges in the Business Architecture section.

» *Integration Architecture* – The technology design that supports the information exchanges and messaging needs of the CJIS environment.

■ Infrastructure

This layer of the schema represents hardware that will be employed to facilitate the overall architecture for CJIS.

» *Platform Architecture* – The hardware and operating systems that are employed for end-user and central processing computers. This includes:

EXHIBIT IV-1

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT

TECHNOLOGY ARCHITECTURE FRAMEWORK

Components

Application, Information, and Integration	■ Application Architecture ■ Information Architecture ■ Integration Architecture
Infrastructure	■ Platform Architecture (Client and Server) ■ Network Architecture ■ Security Architecture
Management and Support	■ Polices, Procedures, and Standards ■ IT Organization ■ Performance Monitoring

Order of Discussion

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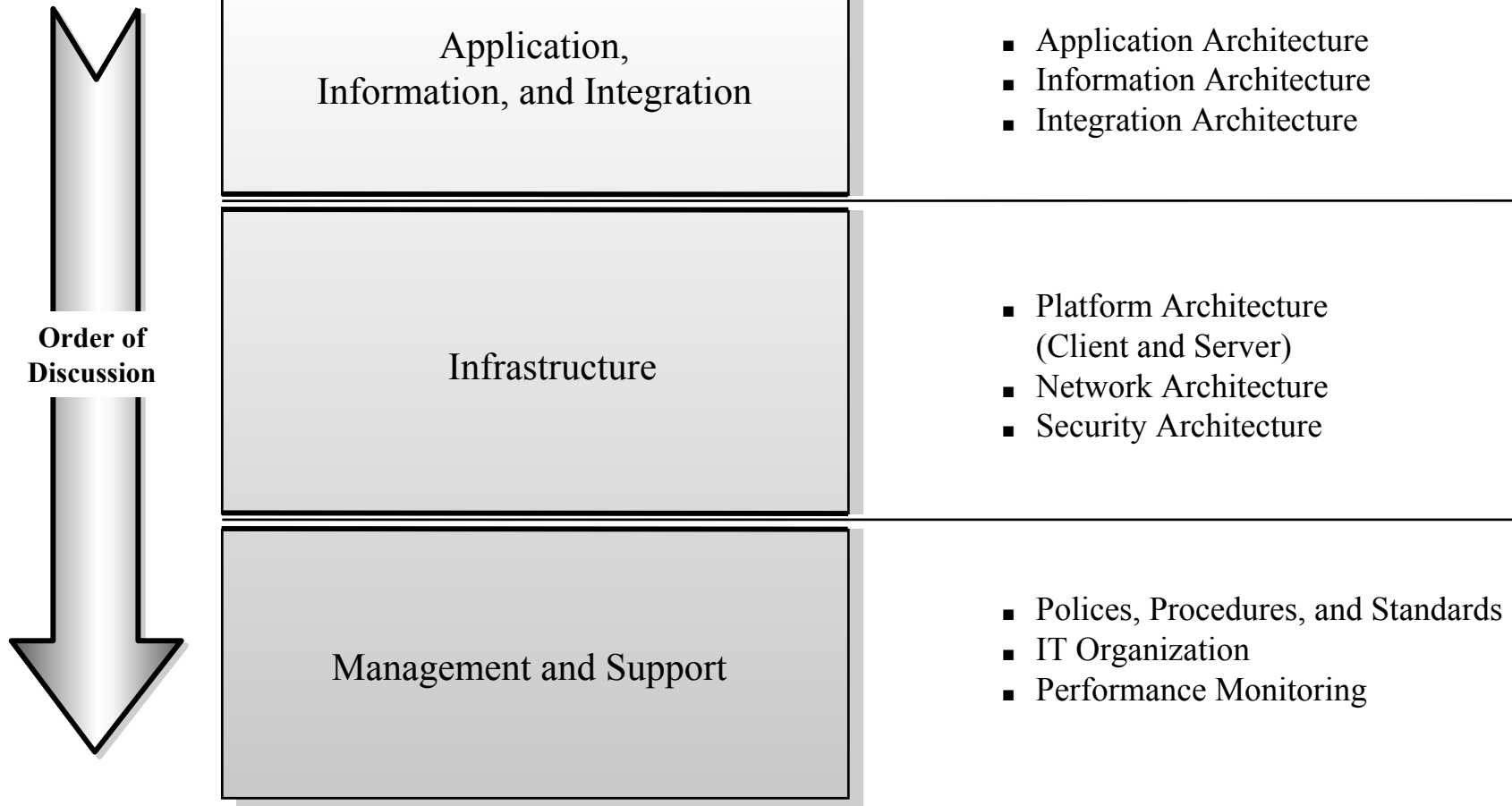
-      *Server* – The computer environment that acts as a source for acquiring information or as a repository for depositing business-critical information.

-      *Client* – The end-user workstation environment.

»   *Network Architecture* – The terrestrial and wireless communications facilities linking CJIS computers, including both server and client devices.

»   *Security Architecture* – The measures taken to protect computing resources against unauthorized access.

■   <u>Management and Support</u>

This layer of the schema represents the technology business management of the overall future architecture. The components being examined are:

»   *Policies, Procedures, and Standards* – The management practices applied to applications, infrastructure, and organization.

»   *IT Organization* – The organization, roles, and responsibilities involved in the management and operation of IT resources.

»   *Performance Monitoring* – The measurement of application, infrastructure, and organization performance in terms of how well the architecture is meeting the requirements of the user community.
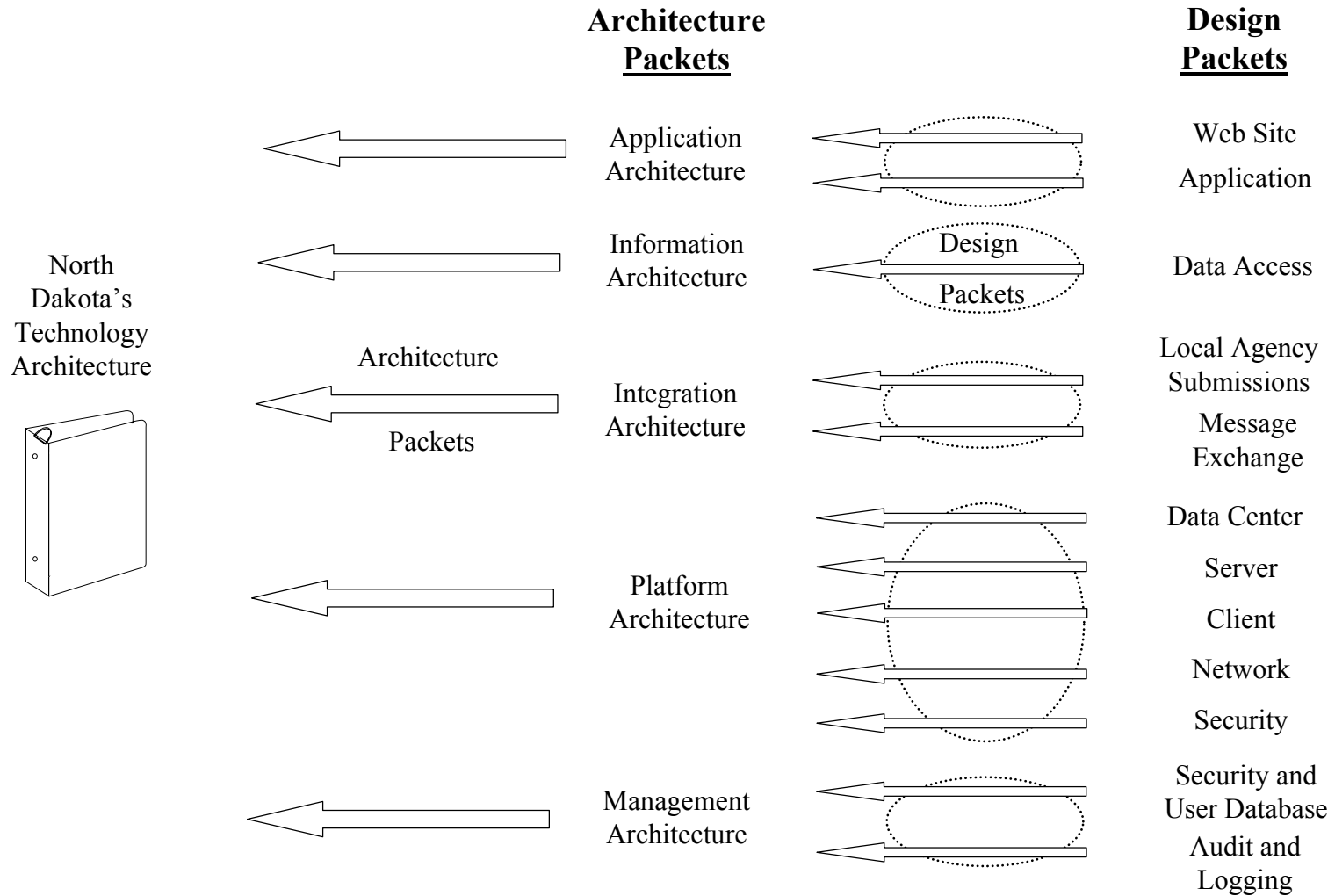

The following three sections discuss the CJIS architecture in the context of this framework, beginning with the application, information, and integration layer and working through the schema to the management and support layer. This approach to discussing the CJIS technology architecture presents the portions that most users see first (i.e., application, information, and integration) and works down through the technology layers to details that are largely invisible to users. The top layer, called the architecture layer, represents the overall conceptual design of the CJIS environment. In a few cases, the layers beneath the architecture layer have been detailed in design packets to provided added understanding of the technology architecture. EXHIBIT IV-2, which follows this page, depicts the overall relationship to the various layers. Each layer is discussed in terms of vision, principles and standards, design decisions, and discussion notes, as described below.

■   *Vision* – The purpose of the infrastructure component is outlined by the vision. In short, the vision provides the guiding rationale for this technology.

■   *Principles and Standards* – The CJIS principles and standards provide the guidelines that frame the infrastructure component.

EXHIBIT IV-2

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT

TECHNOLOGY ARCHITECTURE BLUEPRINT

Architecture
Packets

Design
Packets

North
Dakota's
Technology
Architecture

Architecture

Packets

Application
Architecture

Information
Architecture

Integration
Architecture

Platform
Architecture

Management
Architecture

Design

Packets

Web Site

Application

Data Access

Local Agency
Submissions

Message
Exchange

Data Center

Server

Client

Network

Security

Security and
User Database

Audit and
Logging

MTG

- *Design Decisions* – Any design decisions that have been applied to the design will be listed within the design document.

- *Discussion Notes* – Any issues created by infrastructure component design or additional tactical decision points that are relevant to complete the understanding of an infrastructure component.

The descriptions are provided in an appendix format, called architecture and design packets, to facilitate the creation of a working technology architecture that is updated and enhanced by revising or adding packets.

V. APPLICATION, INFORMATION, AND INTEGRATION ARCHITECTURES

V. APPLICATION, INFORMATION, AND INTEGRATION ARCHITECTURES

This section describes the target application and information architectures for CJIS, as well as the overall integration architecture that will support information exchange between and among the state and local justice systems within North Dakota.

- *Application Architecture.* The application architecture is discussed first since the applications provide required capabilities to capture the data needed to support operations and information sharing within the justice community.

- *Information Architecture.* Next, a logical view of the information architecture is presented that outlines how the future CJIS will support functional operational data needs as well as interfunctional information sharing.

- *Integration Architecture.* This section concludes with the integration architecture, which describes how key components of the CJIS technology architecture will support integration and information sharing.

The subsections below support the overall technology principles previously outlined in Section IV.

A. APPLICATION ARCHITECTURE

Applications provide access to information and integrate systems, allowing the CJIS environment to deliver business functionality to users. The application infrastructure is a core effort in implementing the CJIS technology architecture. The application architecture presented in this subsection represents the current and future applications that will support operations of the justice agencies and capture the data needed for information exchange among justice partners across the state.

The primary current applications that will evolve or, in some cases, be replaced to function in the CJIS architecture include:

Current System	Primary User	Status
Protection Orders	AG, State Radio, Local Law Enforcement	Operational. Current project is under way to improve the business processes that develop and exchange protection order information. (See APPENDIX C, Section B, Project 2.)

Current System	Primary User	Status
AFIS	BCI	Operational. System information is housed in Minnesota's BCA AFIS repository. See APPENDIX C, Section B, Project 2 for related project information.
Criminal History	BCI, State Radio, Local Criminal Justice	Operational. See APPENDIX C, Section B, Project 2 for related project information.
Crash Records Online System	DOT	Operational.
Digitized Drivers Licensing System (DDLS)	DOT	Operational.
Vehicle Titling and Registration System (VTRS)	DOT	Operational.
State's Attorney Management System (SAMS)	State's Attorneys	Operational, but this system is only used in a few State's Attorneys' offices.
Citations[1]	NDHP	Operational.
Premier MDT	NDHP	Operational.
TAG (CTag, ITag, and Trust modules)	DOCR	Operational, and will meet the needs of DOCR for at least the next 5 years.
Department of Corrections Subject Tracking and Reporting System (DOCSTARS)	DOCR	Operational, and will meet the needs of DOCR for at least the next 5 years.
Juvenile Case Management System (JCMS)	Judicial Branch	Operational.
Supreme Court Docket System (SCDS)	Judicial Branch	Operational.
Unified Court Information System (UCIS)	Judicial Branch, State's Attorneys	Operational.
North Dakota Law Enforcement Telecommunications Systems (NDLETS)	State Radio, Local Criminal Justice	Operational.

[1] This system tracks all citations written by NDHP officers.

EXHIBIT V-1, which follows this page, provides additional details about the applications that are currently in use within the state. There are also a number of collateral systems in place, such as Sex Offender Registration (SOR), Warrants, and BCI's Local Case Management with Uniform Crime Reporting (UCR) reporting, that should be considered for review within the context of more

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EXHIBIT V-1
Page 1 of 4

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT

SYSTEM MATRIX

System Name	Primary Organizations Using the System	Application Security and Functionality	Technical Environment	Within Project Scope?	Interfaces To: From:
Case Management	NDAG	**Security:** User ID, Password **Functionality:**	DOS, dBASE, Clipper	Yes	None Identified
Concealed Weapon Permits	NDAG	**Security:** User ID, Password **Functionality:**	DOS, dBASE, Clipper	Yes	**To:** Deposits **From:**
HIDTA Program	NDAG	**Security:** User ID, Password **Functionality:**	Secure Internet Connection	No	None Identified
Intelligence	NDAG	**Security:** User ID, Password **Functionality:**	IBM AS/400, DB2-400, RPG/Visual RPG, Synon	Yes	None Identified
Interim Distributed Imaging System (IDIS)	NDAG	**Security:** User ID, Password **Functionality:**	NT Server and Workstation, FoxPro	Yes	**To:** FBI IAFIS **From:** State AFIS, FBI IAFIS
Law Enforcement Online	NDAG	**Security:** User ID, Password **Functionality:**	Outgoing Modem	No	None Identified
Mid-States Organized Crime Information Center (MOCIC)	NDAG	**Security:** User ID, Password **Functionality:** Intelligence System	Secure Internet Connection	No	None Identified
NFIRS-FM	NDAG	**Security:** User ID, Password **Functionality:**	Internet	No	None Identified
Protection Orders	NDAG	**Security:** User ID, Password **Functionality:**	NT Server, Progress, Progress	Yes	**To:** NDLETS **From:** NDLETS
SOR	NDAG	**Security:** User ID, Password **Functionality:**	NT Server, Progress, Progress	Yes	**To:** NDLETS, CCH **From:** NDLETS, CCH
UCR System	NDAG	**Security:** User ID, Password **Functionality:**	Mainframe, IBM AS/400 and PC DOS-based, DB2-400, Clipper and RPG/Visual RPG	Yes	None Identified
AFIS	BCI	**Security:** User ID, Password **Functionality:**	UNIX (Vendor: Printrak)	Yes	**To:** FBI IAFIS, BCA AFIS, CCH **From:** NDLETS, BCA AFIS, CCH
Criminal History	BCI	**Security:** User ID, Password **Functionality:** Criminal History Records Checks	NT Server, Progress, Progress	Yes	**To:** NDLETS, NIST Server (BCI) **From:** NDLETS, NIST Server (BCI), AFIS
Live-Scan	BCI	**Security:** User ID, Password **Functionality:**	UNIX (Vendor: Printrak)	Yes	**To:** AFIS, Criminal History, Warrants **From:** Live-Scan
SAMS	BCI	**Security:** User ID, Password **Functionality:**	IBM AS/400, DB2-400, RPG/Visual RPG, Synon	Yes	**To:** Grand Forks' UCIS Installation **From:**

EXHIBIT V-1
Page 2 of 4

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT

SYSTEM MATRIX

System Name	Primary Organizations Using the System	Application Security and Functionality	Technical Environment	Within Project Scope?	Interfaces To: From:
Warrants	BCI	**Security:** User ID, Password **Functionality:**	NT Server, Progress	Yes	**To:** NDLETS **From:** NDLETS
Legal Docket	NDAG – Civil Litigation, Criminal and Regulatory, and Natural Resources and Indian Affairs Divisions	**Security:** User ID, Password **Functionality:**	IBM AS/400, DB2-400, RPG/Visual RPG	No	None Identified
TAG (CTag, ITag, and Trust Modules)	DOC	**Security:** **Functionality:** Adult and Juvenile Services Offender Management and Reporting	NT Server (SYS2), Oracle, C and SQL (Vendor: Syscon)	Yes	None Identified
DOCSTARS	DOC – Central Office and Field Services Division	**Security:** **Functionality:** Field Services Offender Management, Risk, Needs, and Reporting Information	NT Server, Access, Visual Basic	Yes	**To:** BCI and Supreme Court **From:**
Chronos Subsystem (Chronos)	DOC – Field Services Division	**Security:** **Functionality:** Provides Electronic Chronological Entries About Behavior, Compliance, Violations, and Various Other Activities	NT Server, Access, Visual Basic	No	None Identified
AFIS (Live-Scan Only)	DOC – Prisons Division	**Security:** **Functionality:**	Minnesota BCA System	Yes	None Identified
Crash Records Online System	DOT	**Security:** User ID, Password **Functionality:**	IBM Enterprise Server (TS3), DB2, PowerBuilder	Yes	None Identified
DDLS	DOT	**Security:** User ID, Password **Functionality:** Used to Issue Drivers Licenses, Permits, and ID Cards	Unix, C++ (Vendor: Unisys)	Yes	**To:** NDLETS **From:**
DL3	DOT	**Security:** User ID, Password **Functionality:** Contains the Data on Drivers	IBM Enterprise Server, Adabas, Natural, COBOL, CICS	Yes	**To:** Available Through Internet **From:**
Geographic Information System (GIS)	DOT	**Security:** User ID, Password **Functionality:**	IBM Enterprise Server, Novell, DB2, Oracle, Access, dBASE (Vendor: ArcView) (Server CO2)	No	None Identified
Road Reporting System	DOT	**Security:** User ID, Password **Functionality:**	Novell Server, MS Access, Visual Basic	No	None Identified

EXHIBIT V-1
Page 3 of 4

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT

SYSTEM MATRIX

System Name	Primary Organizations Using the System	Application Security and Functionality	Technical Environment	Within Project Scope?	Interfaces To: From:
Single State Registration System	DOT	**Security:** User ID, Password **Functionality:**	Novell Server, dBASE, dBASE and Informs	No	None Identified
Traffic Data Editing and Analysis (TDEA)	DOT	**Security:** User ID, Password **Functionality:**	IBM Enterprise Server, DB2, PowerBuilder	No	None Identified
VRTS	DOT	**Security:** User ID, Password **Functionality:**	NT Server, Oracle, PowerBuilder	Yes	**To:** NDLETS via CICS **From:**
Vehicle Title and Registration Information	DOT	**Security:** User ID, Password **Functionality:**	IBM Enterprise Server (MV1, 2, 6, 7, 42, and 47), Adabas, COBOL, Natural	No	None Identified
Citations	NDHP	**Security:** **Functionality:** Tracks All Citations Written by NDHP	Mainframe, Oracle, PowerBuilder	Yes	None Identified
Contacts System	NDHP	**Security:** **Functionality:** Case File Management System That Tracks all Cases Investigated, Contacts, and Reported Incidents	Mainframe, Oracle, PowerBuilder	Yes	None Identified
GIS	NDHP	**Security:** **Functionality:** Mapping Fatalities and Citations	Not Identified	No	None Identified
Premier MDT	NDHP	**Security:** **Functionality:** Connects the Mobile Patrol Vehicle With the State Message Switch	Windows NT/95, Access, Visual Basic (Vendor: Software Corporation of America [SCA])	Yes	**To:** NDLETS **From:** NDLETS
Safetynet	NDHP	**Security:** **Functionality:** Tracks Commercial Motor Vehicle Inspections	Novell, dBASE III, dBASE (Vendor: Federal DOT)	No	None Identified
Jury Management System	Judicial Branch	**Security:** User ID, Password **Functionality:** Provides Automated Jury Management	Citrix – Client /Server Developed in dBASE/Visual dBASE	No	None Identified
JCMS	Judicial Branch – Juvenile Court	**Security:** User ID, Password **Functionality:** Case Management for Juvenile Courts	NT Server, Oracle, Delphi	Yes	None Identified
SCDS	Supreme Court	**Security:** NT Authentication **Functionality:** Case Management for Supreme Court	NT Server, MS Access Database, Visual Basic	Yes	**To:** Bar Board, State Court Web Site **From:**

EXHIBIT V-1
Page 4 of 4

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT

SYSTEM MATRIX

System Name	Primary Organizations Using the System	Application Security and Functionality	Technical Environment	Within Project Scope?	Interfaces To: From:
UCIS	Judicial Branch	**Security:** User ID, Password **Functionality:** Case Management for District Courts	IBM AS/400, DB2-400, RPG	Yes	**To:** DOT, SAMS, Public Access Terminals; BCI; Department of Health **From:** DOT and SAMS, BCI
NDLETS	State Radio	**Security:** **Functionality:**	Escala Message Switch	Yes	**To:** NLETS and NCIC **From:** NLETS and NCIC
Incident Reporting System	State Radio	**Security:** **Functionality:**	In-House – Tools Not Identified	Yes	None Identified
MDC	State Radio	**Security:** **Functionality:**	Software Corporation of America (Motorola)	Yes	None Identified
Radio Communications	State Radio	**Security:** **Functionality:**	Motorola Radio System	No	**To:** **From:** State Voice Radio Communication Hardware

functionally rich primary operational applications planned within the CJIS implementation plan. These primary and collateral systems will evolve and/or be replaced over time, guided by the application architecture outlined in APPENDIX M, the Application Infrastructure Architecture Packet. This architecture packet consists of the application infrastructure and two design packets that support the application infrastructure. Overall, the application decomposition presented in APPENDIX M details the future vision of the desired North Dakota application infrastructure. This infrastructure is the visible product that CJIS users will utilize once the CJIS vision is realized. The specific actions that will be taken to move toward this vision during the initial planning will be detailed in the CJIS implementation plan.

B.   INFORMATION ARCHITECTURE

An information architecture is a blueprint of one of the CJIS project's greatest assets: data. A well-defined data architecture helps to ensure that this asset is of the highest quality, is easy to access, and is as inexpensive as possible to maintain. The CJIS vision for the information architecture is to ensure that data is consistent and readily accessible for North Dakota justice staff, other state and local justice partners, and the citizens of the state. EXHIBIT V-2, which follows this page, provides a logical view of the major data stores contemplated within the scope of the CJIS project, presented in the context of the future application model and integration environment. Key information stores within the CJIS and state environment include:

- *CJIS Index and Repository*. This information store contains key information, such as Social Security Number or case number, pulled from the operational data stores. A key component of the CJIS index will be the addition of the unique statewide identifiers of individuals, cases, and incidents. The information within this logical store provides the details to interconnect information within the other logical and operational stores.

- *CJIS Data Warehouse*. The data warehouse will contain a regularly updated replica of the justice information captured in the multiple operational data stores. This information will be used to fulfill query requests from the Web portal and message exchange without having to go to operational data stores. This logical store will also provide a resource for research and analysis to accommodate a decision support system when it is implemented.

- *State Nonjustice Operational Databases*. These databases include information currently managed to support nonjustice state applications (e.g., Department of Health, Department of Human Services) that have some interest to or in CJIS partners. This logical store will be the destination for information that is sent by CJIS applications to nonjustice state organizations as required by various business processes. In addition, these operational databases may be coupled with CJIS applications as the state further develops the integration backbone.

EXHIBIT V-2

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT

LOGICAL CJIS INFORMATION MODEL

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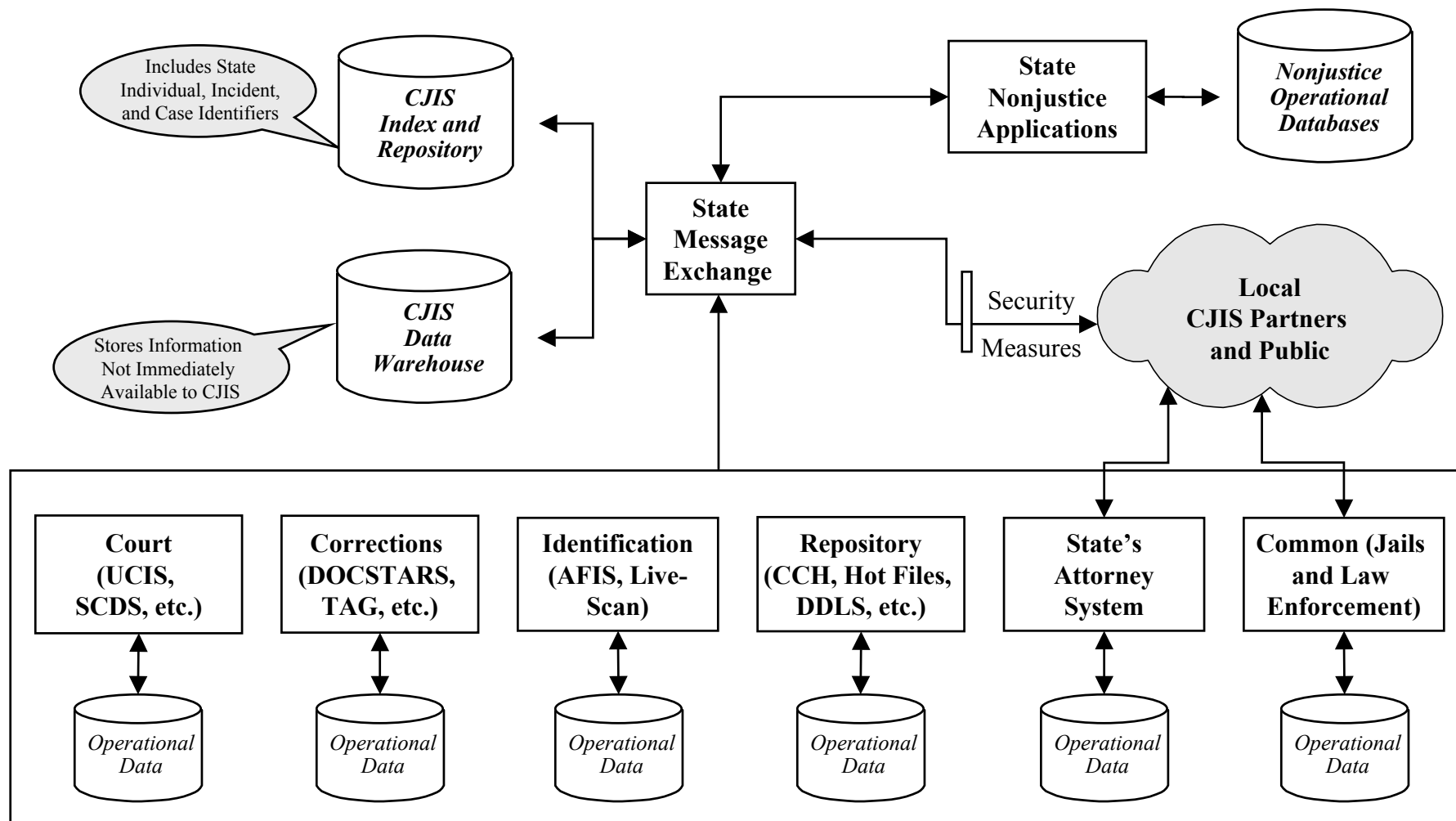
- *Operational Data*. This is the day-to-day operational information managed by the functional applications envisioned within CJIS (e.g., Court, Corrections, Identification, etc.). Operational data will be used to add information to the CJIS data warehouse and index repository, but the majority of CJIS information will reside in the production data store, unless that data store is not available to meet CJIS requirements.

APPENDIX N provides the information architecture packet and additional detailed specifications for the information architecture. The overall context of the information architecture is based on the desire to utilize existing repository information wherever possible to maximize data accuracy across the CJIS environment. This is achieved by indexing information and, only where necessary, warehousing data. This context guides the state toward a distributed information topology that relies on the subject matter experts within each CJIS business area to maintain the quality and timeliness of the information available to CJIS systems.

C.   INTEGRATION ARCHITECTURE

The integration architecture provides the mechanisms through which North Dakota justice organizations and their justice partners are able to share information. This architecture will support the full range of information exchange, including Publish/Query, Push/Pull, and Subscription/Notification capabilities. This architecture is positioned to provide justice community access as well as appropriate nonjustice access, such as other government agencies (e.g., Children's Services), private sector businesses, and the general public. Although not currently planned, some of the nonjustice access may be on a fee-for-service basis.

EXHIBIT V-3, which follows this page, outlines the integration architecture for CJIS. The CJIS integration environment illustrated in the exhibit includes a number of key components that rely on a robust network and security infrastructure (discussed in a subsequent section) and combine to deliver the desired integration functionality. The key components are:

- *User*. The user creates the information need in either real time or based on predefined requests that utilize the integration architecture. This represents the initiating activity or event that starts an information exchange within the CJIS environment.

- *Portal*. The portal provides access to the master index, applications, intranets and one-stop data in CJIS environment. Although functionally complex, the portal is the tool that the CJIS project will use to standardize and focus CJIS application and information exchange efforts. New applications should be acquired and accessed through the portal and existing applications should be extended to provide services via the portal. This provides a single maintenance point for changes to information delivery systems within the CJIS environment.

EXHIBIT V-3

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT

INTEGRATION ARCHITECTURE
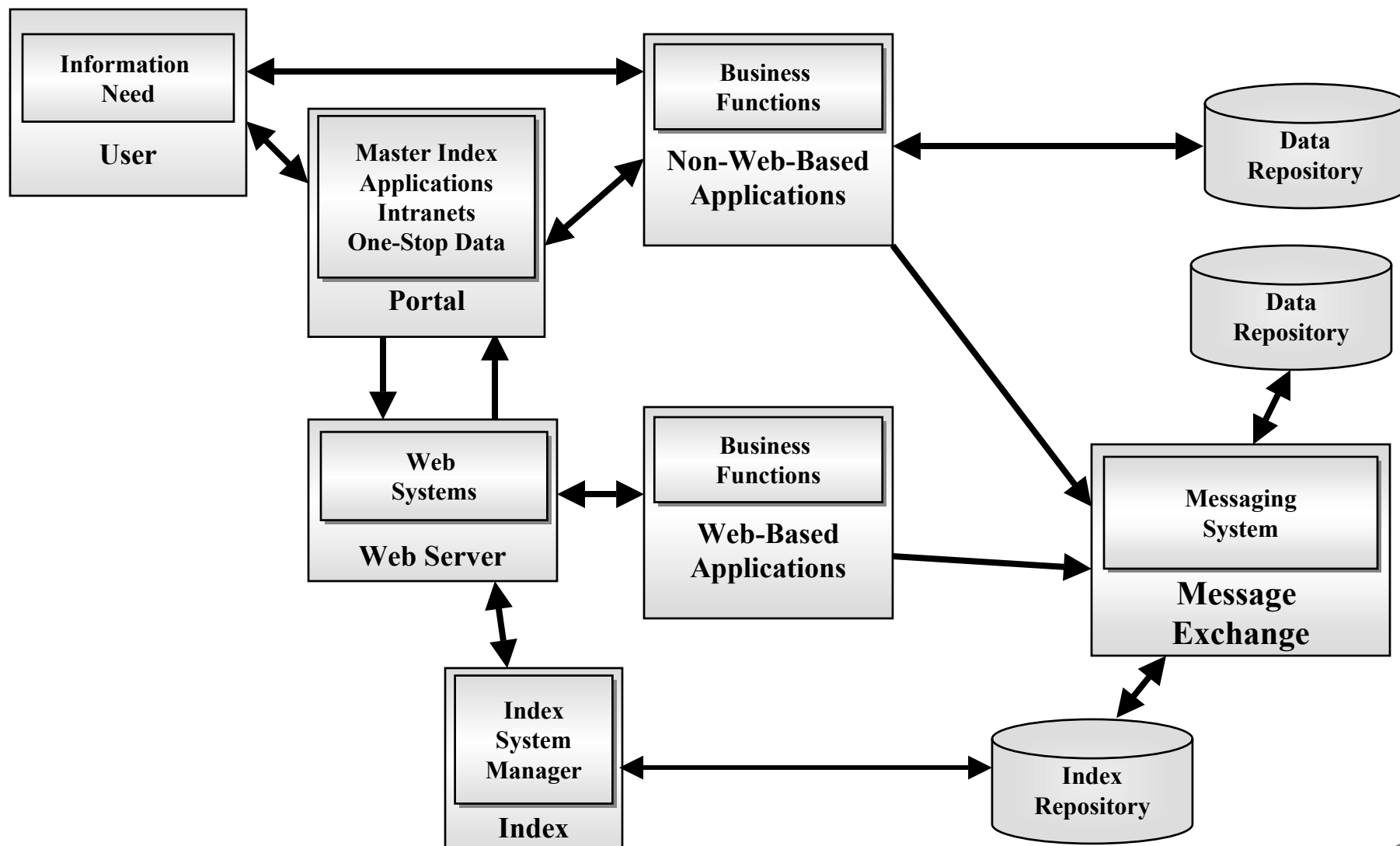
- *Web Server.* The Web server controls the traffic allowed to access information through the CJIS Web portal and temporarily stores requested information. It also provides a direct connection to the index server to allow fast access to critical information with the CJIS environment.

- *Web-Based Applications.* CJIS Web-based applications are common application services desired by local CJIS partners that do not maintain their own systems. The CJIS Web portal acts as the entry for these applications that provide basic functionality for organizations. These applications are critical to the CJIS integration backbone's ability to define information to CJIS users.

- *Index.* The index stores key components of the information contained in the data warehouse and operational data stores. This information is utilized to fill portal query requests, giving users a quick hit list from which additional information may be sought. In addition to the select information components, the index server contains the location in the data warehouse, or data store, where the complete information is stored.

- *Index Repository.* The role of the data warehouse is to fulfill queries from the Web portal by providing the index information and operational data store for the requested data. This feature provides an immediate hit that information is available and the link to the system that houses the information.

- *Message Exchange.* The message exchange manages the information exchanges between justice organizations via the CJIS integration backbone. Based upon preset business rules, this message exchange distributes CJIS information to the CJIS backbone and processes incoming requests from the CJIS backbone for CJIS information.

- *Data Repository.* The role of the data repository is to fulfill queries from the Web portal without putting additional strain on the operational data stores. The data repository also provides the data resources to complex data research and analysis without affecting the operational systems.

The integration architecture packet presented in APPENDIX O provides additional design information as well as specific design packets for this architecture. These components of the CJIS integration architecture facilitate both access to information and the exchange of that information between state and local organizations.

VI. <u>PLATFORM ARCHITECTURE</u>

VI. PLATFORM ARCHITECTURE

The platform architecture consists of the hardware, wiring, and software components that create the physical devices and infrastructure upon which the application layer operates. The platform layer includes the operating systems that run the devices utilized by CJIS staff. This layer consists of three major components: platforms (consisting of clients and servers), network, and security. Each of these three components will be discussed below.

A. PLATFORM MODEL

The future systems model will be largely based on the current infrastructure model, but will include additional features needed to support improved security, performance, and availability in the CJIS environment. The improvements are focused on centralizing the CJIS servers[4] into a CJIS Data Center and creating a CJIS integration backbone. EXHIBIT VI-1, which follows this page, provides a diagram of the logical platform architecture. Characteristics of the key elements in this future platform model include:


- *Local CJIS Partner Systems.* The CJIS project focuses on delivering information to CJIS partners within the state of North Dakota. This component of the model represents the local users and, in cases where local systems exist, those systems as well.

- *Connection Infrastructures.* Although discussed in the next subsection, the connection infrastructures provide the means of accessing the CJIS environment and may consist of any secured connection.

- *CJIS Integration Backbone.* The CJIS integration backbone is a logical representation of the CJIS Data Center, CJIS network components, and CJIS security mechanisms. Within the context of the platform architecture, this component represents the servers and support systems within the data center.

- *State Networks.* This component represents the existing organization infrastructure, including networks, security systems, servers, and client devices. CJIS organizations are also represented within this component. For the purposes of the platform architecture discussion, this represents only the server and client systems in this component.

These major components are important in the discussion of the platform model. The direct impact of the platform architecture applies to the CJIS integration backbone; however, the other components of

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[4] The term CJIS servers refers to the servers that support CJIS services, not specific agency applications.

EXHIBIT VI-1

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT

LOGICAL PLATFORM ARCHITECTURE
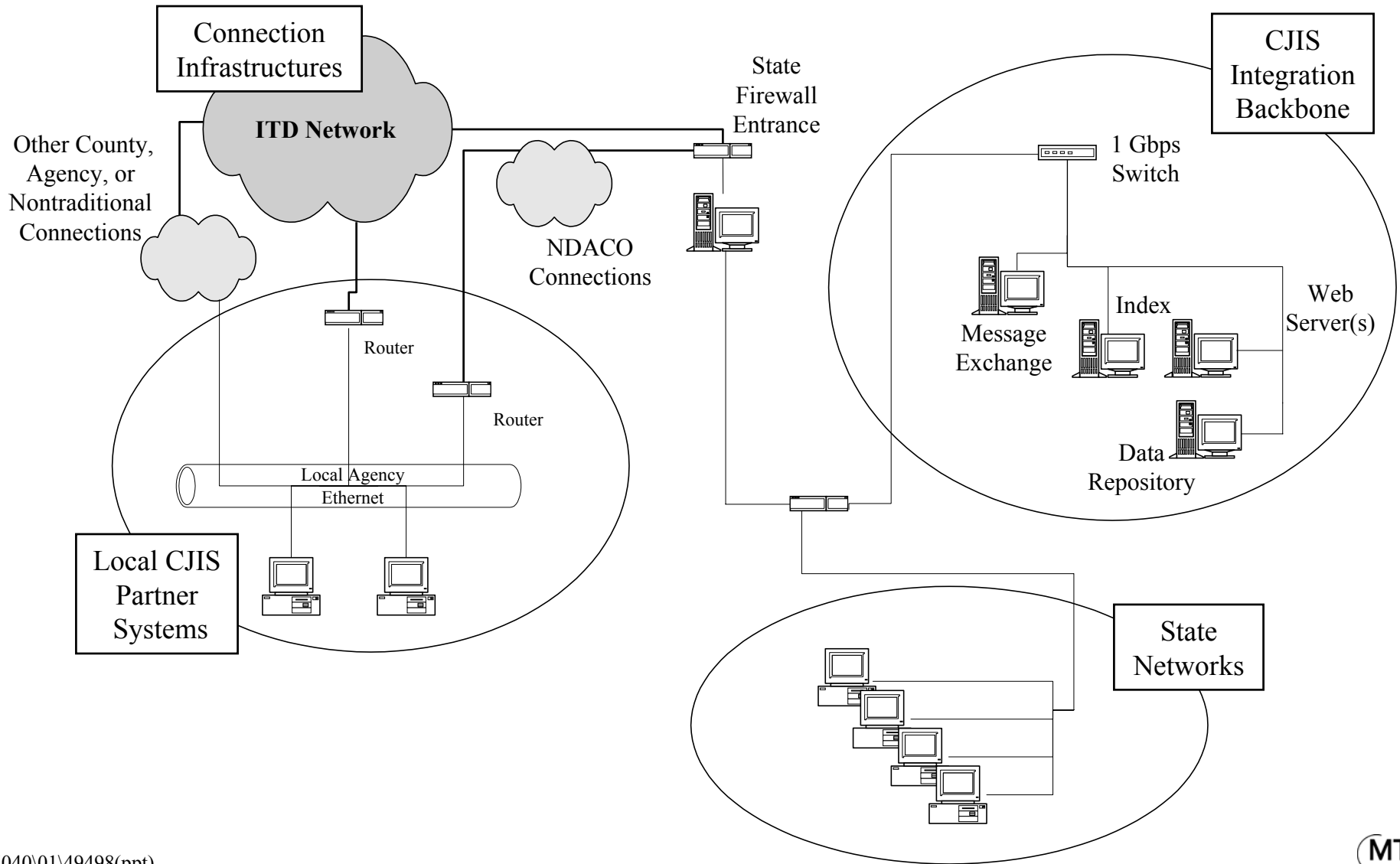
the model are affected by the overall CJIS direction. Physical characteristics of the key elements in this future platform component model include server and client platforms. Within the CJIS platform model, there are three key server and client platform components:

- The use of clustered servers at critical points within the infrastructure is a central element of the model. This will allow increased operational availability for the North Dakota systems and access to justice data.

- A second key component will consist of internal server redundancy. These devices must be robust enough to deliver the services required by CJIS agencies.

- The final component is the availability of client devices that support Web-based access and proposed CJIS connections. Although not specifically part of the CJIS integration backbone, these devices must possess the ability to run CJIS applications.

The principles and tactical decisions that will guide the evolution and ultimate characteristics of the CJIS infrastructure environment are outlined in APPENDIX P, the Platform Architecture Packet. The packet details the following platform components:

- *Data Center Design (APPENDIX P-1)*. This packet details the organization of the CJIS Data Center that will support all CJIS enterprise components, most importantly the CJIS integration backbone.

- *Server Design (APPENDIX P-2)*. This packet documents the design principles and decisions made with respect to operating system platforms.

- *Client Design (APPENDIX P-3)*. This design packet highlights the choices and issues that organizations should consider when purchasing client devices. Although this design does not mandate specific client devices, the design parameters of the rest of the Technology Architecture rely on the specifications in this packet.

The architecture packet and design packets provide the details for the platform architecture described above. Specific changes to the infrastructure and the timing for migrating to this future model will be described in the Implementation Plan. The next two subsections outline the mechanism to access and secure the platform architecture.

B. NETWORK ARCHITECTURE

StageNet, North Dakota's current statewide enterprise network, will be used to support CJIS. In general, StageNet provides the connectivity necessary for the CJIS integration backbone and most CJIS partners. Where StageNet does not provide connections to CJIS partners and their users, CJIS

will extend the CJIS environment as detailed in APPENDIX P-4, the Network Design Packet. This design packet supplements the Platform Architecture detailed in APPENDIX P.

C.   SECURITY ARCHITECTURE

The security architecture provides the design view of the security that should be used to support the North Dakota CJIS network, application, and Web site environment. The design model establishes the criteria for the security infrastructure presented in APPENDIX P-5. The security model that supports the CJIS environment is critical to CJIS's success. The security architecture described in the appendix builds upon the existing and proposed network and hardware infrastructures. The central focus of the security environment is protecting information while maintaining the open exchange of CJIS information. APPENDIX P is supplemented with APPENDIX P-5, the Security Architecture Packet. APPENDIX P-5 is included separately because of the confidential nature of information presented in the appendix.

VII. <u>IT MANAGEMENT AND SUPPORT</u>

VII.   IT MANAGEMENT AND SUPPORT

Technology environments typically consist of significant investments in multiple heterogeneous systems. This common situation is also true in North Dakota. Therefore, it is important to employ the management structures necessary to ensure the appropriate benefit is being realized from these investments. The IT management and support layer of the Technology Architecture represents the technology management processes for the future CJIS environment. These management components are discussed from a logical perspective (i.e., they do not necessarily suggest a physical structure). The implementation (i.e., movement from logical to physical) must be an integral part of implementing CJIS through the Implementation Plan.

A.   POLICY REQUIREMENTS

The areas of policies and procedures that address change management and ongoing support of technical architecture include:

- Project planning and initiation.

- Project oversight

- Quality assurance.

- Requirements management.

- Contract management.

- Configuration management.

- Release management.

- Application support.

- Disaster recovery.

Each of these areas is critical to effective implementation and support of the efforts necessary to realize the CJIS vision, goals, and objectives. Establishing clear policy, accompanied by appropriate procedures, will determine the manner in which efforts are undertaken, managed, reported, communicated, and supported. The level of detail with which these policies and procedures are supported in day-to-day practice will, to a large degree, influence the risks and long-term success of CJIS. The manner in which North Dakota's CJIS IS organization and the ITD support functions will be mandated, structured, and organized must address formal methods and processes to manage and implement each of these practices.

B.   IT ORGANIZATION

The organization, roles, and responsibilities involved in the management and operation of IT resources will change over the next few years. The functional structure presented below represents the future support model that will be required for North Dakota's CJIS IS organization and the ITD support functions. CJIS organizations should examine the functional model, ongoing project efforts, and internal needs to begin to adopt the model concepts within the IT organization and make refinements in the organizational structure and roles and responsibilities of IT support organizations and staff, as appropriate.

1.   IT Functional Support Model

The IT functional support model is organized into three major functions. Each of these functions is responsible for primary types of service. The functions are outlined below.

■   The Technical Services function is responsible for:

   »   Systems operations.

   »   Magnetic media library management.

   »   Hardware installation and changes.

   »   Operating systems software installations, conversions, and upgrades.

   »   Computer center physical data access security.

   »   Server design, build, maintenance, and upgrade.

   »   LAN design and installation.

   »   Wide area network (WAN) design and installation.

   »   Web farm design and installation.

   »   Security infrastructure design and installation.

   »   Contractual support arrangements.

■   The Application Services function is responsible for:

   »   Exchange design and development.

   »   Exchange monitoring and support.

   »   Application consulting.

» Application design and development.

» Application maintenance.

» Application project management.

» Application administration.

» Database administration.

» Resource scheduling and coordination.

» Server-level application solutions.

■ The Support Services function is responsible for:

» PC technical consulting.

» Desktop design, build, maintenance, and upgrade.

» PC application rollout.

» LAN administration.

» Desktop project management.

» CJIS-wide help desk services.

» CJIS 24/7 help desk services.

» Computer training center.

» Imaging and micrographics services, where required.

As CJIS implementation begins, the technical functions supporting CJIS and its evolution must concurrently change to refine the organization structure and technical skill sets required to support the CJIS environment. It is expected that the technology support functions will continue to be challenged by increasing demands and limited resources. If the corporate job market rebounds, the IT support functions will need to explore alternative methods to retain staff and examine supplementing internal resources with contracted services on a long-term basis.

2.   IT Support Coverage

The CJIS IT support structure within North Dakota will be primarily organized to provide regular business day/hour support by the ITD staff. As the CJIS integration backbone is developed and deployed, a separate but similar group will need to provide the help desk support for after hours

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callers on all CJIS applications.[5]   Initially, this functional group may consist of individuals who are on-call; however, as demand and utilization increases, this group should evolve to a 24/7 operation. The group should also provide backup support for local CJIS partner organizations, where available, that have single-depth positions with limited or no backup.

C.   IT MANAGEMENT TOOLS

As CJIS is implemented, it will be critical that the appropriate tools, accompanied by structure processes and procedures, are in place to manage the future environment. In addition, key elements of application, infrastructure, and organization performance must be measured in terms of how well the architecture and IT support functions are meeting the requirements of the justice community. APPENDIX Q, the Management Architecture, provides the overall structure of the tool sets that should be employed within the CJIS environment and, perhaps, the ITD environment, where appropriate.

Acquiring these tools, training IT staff in the proper use of the tool set, and establishing structured procedures for the application and use of these tools will provide the support infrastructure for the technical architecture within North Dakota. As previously discussed within the technology standards, the CJIS technical subcommittee should formally adopt the specific tools that will be used for each of the above tasks. In some cases, this process may have already occurred within the state's ITD standards. However, all CJIS IT support tools should be formalized with an action plan, listing purpose, performance goals, tools, measurements, and actions to be taken when monitoring reveals performance issues. In support of this point, APPENDIX Q-1, the Security and User Database Design Packet, and APPENDIX Q-2, the Auditing and Logging System Design Packet, provide the design parameters for two of the management support tools.

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[5]   In addition, this support structure would be utilized by the interface partners. The help desk will have the appropriate procedures to either assist the interface partner or refer him/her to the appropriate technician.

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VIII. <u>TECHNOLOGY ARCHITECTURE BINDER</u>

VIII. TECHNOLOGY ARCHITECTURE BINDER

Several architecture packets and design packets have been included as part of this Technology Architecture. As previously stated, these packets are intended to provide specific parameters for each component of the architecture. The utility of the packets is further intended to extend beyond this document into an actual CJIS design portfolio consisting of these packets and future packets created in support of specific CJIS components. The following packets have been provided with this deliverable:

- Application Architecture Packet (*APPENDIX M*)

    » Application Design Packet (*APPENDIX M-1*)

    » Web Site Design Packet (*APPENDIX M-2*)

- Information Architecture Packet (*APPENDIX N*)

    » Data Access Design Packet (*APPENDIX N-1*)

- Integration Architecture Packet (*APPENDIX O*)

    » Local Agency Data Submissions Design Packet (*APPENDIX O-1*)

- Platform Architecture Packet (*APPENDIX P*)

    » Data Center Design Packet (*APPENDIX P-1*)

    » Server Design Packet (*APPENDIX P-2*)

    » Client Design Packet (*APPENDIX P-3*)

    » Network Design Packet (*APPENDIX P-4*)

    » Security Architecture Packet (*APPENDIX P-5*) [Published as a separate packet]

- Management Architecture Packet (*APPENDIX Q*)

    » Security and User Database Design Packet (*APPENDIX Q-1*)

    » Auditing and Logging System Design Packet (*APPENDIX Q-2*)

This structure provides the framework for a complete architectural design document, provided that information is documented and added with each CJIS project. An example of a design packet that would be added as part of a CJIS project would be a packet for the firewall design, detailing the vision, principles, and design decisions used to implement the firewall.

* * * * * *

This Technology Architecture deliverable provides the business issues, scope, and technology fundamentals (vision, principles, design, and discussion notes) for the CJIS effort within North Dakota. The next project deliverable will be the Implementation Plan that outlines how North Dakota will achieve its vision to:

> *Improve public safety by providing effective and efficient justice policies, processes, and information systems required to capture and share complete, accurate, and timely information in support of program operations and informed decision making across jurisdictional and organizational boundaries statewide.*

APPENDIX A
GLOSSARY

GLOSSARY

Acronym	Definition
AAMVA	American Association of Motor Vehicle Administrators
AFIS	Automated Fingerprint Identification System
ANSI	American National Standards Institute
API	Application Program Interface
ASCII	American Standard Code for Information Interchange
ATN	Arrest Tracking Number
BCA	Bureau of Criminal Apprehension (Minnesota)
BCI	Bureau of Criminal Investigation
BPR	Business Process Reengineering
CAD	Computer-Aided Dispatch
CADD	Computer-Aided Design and Drafting
CCH	Computerized Criminal History
CDPC	Cellular Digital Packet Data
CDSA	Common Data Security Architecture
CJIS	Criminal Justice Information Sharing
COTS	Commercial Off-the-Shelf
DCOM	Distributed Computer Object Model
DDLS	Digitized Drivers License System
DEA	Drug Enforcement Agency (Federal)
DES	Data Encryption Standards
DMZ	Demilitarized Zone
DNS	Domain Name Services
DOCR	Department of Corrections and Rehabilitation
DOCSTARS	Department of Corrections Subject Tracking and Reporting System (Vendor Product Name)
DOJ	Department of Justice (Federal)
DOT	Department of Transportation
DSS	Decision Support Systems
EDI	Electronic Data Interchange

Acronym	Definition
EDMS	Electronic Document Management System
EMS	Emergency Management Service
ERWIN	Vendor Product Name
FBI	Federal Bureau of Investigation
FTE	Full-Time Equivalent
FTP	File Transfer Protocol
GIF	Graphic Interchange Format
GIS	Geographic Information System
GUI	Graphical User Interface
HIDTA	High-Intensity Drug Trafficking Area
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
IAFIS	Integrated Automated Fingerprint Identification System
IBR	Incident-Based Reporting
ID	Identifier or Identification
IP	Internet Protocol
IS	Information System
ISDN	Integrated Services Digital Network
ISO	International Standards Organization
IT	Information Technology
ITD	Information Technology Department
JMS	Jail Management System
LAN	Local Area Network
LDAP	Lightweight Directory Access Protocol
LEO	Law Enforcement Officer
LERMS	Law Enforcement Records Management System
MDC	Mobile Data Computer
MDT	Mobile Data Terminal
MOCIC	Mid-States Organized Crime Information Center
NCIC	National Crime Information Center
NDACO	North Dakota Association of Counties

Acronym	Definition
NDAG	North Dakota Office of the Attorney General
NDHP	North Dakota Highway Patrol
NDLETS	North Dakota Law Enforcement Telecommunications System
NFIRS-FM	National Five Incident Reporting System – Fire Marshall
NGA	National Governors' Association
NIBRS	National Incident-Based Reporting System
NIST	National Institute of Standards and Technology
NIST-CSL	National Institute of Standards and Technology – Computer Systems Laboratory
NLETS	National Law Enforcement Telecommunications System
OLAP	On-Line Analytical Processing
PDF	Portable Document Format
PSI	Presentence Investigation
RFP	Request for Proposal
RMS	Records Management System
SAMS	State's Attorney Management System
SCDS	Supreme Court Docket System
SEARCH	The National Consortium for Justice Information and Statistics *(www.search.org)*
SID	State Identification Number
SNA	Systems Network Architecture
SOAP	Simple Object Access Protocol
SQL	Structured Query Language
SYSCON	Vendor Name
TCP/IP	Transmission Control Protocol/Internet Protocol
TDEA	Traffic Data Editing and Analysis
UCIS	Unified Court Information System
UCR	Uniform Crime Reporting
VLAN	Virtual Local Area Network
VRM	Vehicle Radio Modem
VTRS	Vehicle Titling and Registration System
WAN	Wide Area Network
XML	Extensible Markup Language

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APPENDIX B
BIBLIOGRAPHY

BIBLIOGRAPHY

International Association of Chiefs of Police, *Information Integration Planning Model*, April 2000, *http://www.theiacp.org* and *http://www.iacptechnology.org*.

Kemmet, Jerald C., *Bureau of Criminal Investigation Organization Chart*, Bureau of Criminal Investigation, North Dakota Office of the Attorney General, November 15, 2001.

McNurlin, Barbara C., and Ralph H. Spraque, *Information Systems Management in Practice,* Prentice Hall, Upper Saddle River, New Jersey, 2001.

Minnesota Department of Public Safety, Bureau of Criminal Apprehension, *The Criminal Justice Information Systems (CJIS) Section*, December 18, 2001.
http://www.dps.state.mn.us/bca/CJIS/ Documents/CJIS-Intro.html

MTG Management Consultants, L.L.C., *Anoka County Justice Information Integration Plan Technical Architecture*, Anoka County, Minnesota, April 6, 2001.

North Dakota ITD, *State of North Dakota Request for Proposals, CJIS Architecture, Data Standards, and Technology Plan*, September 27, 2001.

SEARCH, The National Consortium for Justice Information and Statistics, *Integration in the Context of Justice Information Systems: A Common Understanding*, Sacramento, California, April 2000.
http://www.search.org.

SEARCH, The National Consortium for Justice Information and Statistics, *Planning for Integration: Developing Justice Information Exchange Points*, Sacramento, California, March 2000.
http://www.search.org.

SEARCH, The National Consortium for Justice Information and Statistics, *Technical Assistance Report, North Dakota Integrated Justice Planning*, Sacramento, California, February 8, 2001.
http://www.ndcriminaljustice.com/frames/sea-tec-rep.html.

State of Minnesota, *Statewide Criminal Justice Information Integration/Enterprise Architectural Models*, August 20, 2001.
http://www.crimnet.state.mn.us/architecture.htm.

State of North Dakota, *Network Services Standards*, March 3, 1998.
http://www.state.nd.us/itd/planning/standards-policies/standards/approved/std002-98.doc.

State of North Dakota, *North Dakota CJIS Plan, Short-Term Objectives and Current Projects, Improve Access to Court Information.*
http:// www.ndcriminaljustice.com/info-plan/con-cou-inf.html.

State of North Dakota, *North Dakota CJIS Plan, Short-Term Objectives and Current Projects, Improve Access to Court Information.*
http:// www.ndcriminaljustice.com/info-plan/imp-acc-cou-inf.html.

State of North Dakota, *North Dakota CJIS Plan, Short-Term Objectives and Current Projects, Improve Access to Protection Orders.*
http:/ /www.ndcriminaljustice.com/info-plan/imp-acc-to-pro-ord.html.

State of North Dakota, *North Dakota CJIS Plan, Short-Term Objectives and Current Projects, Improve Disposition Reporting.*
http://www.ndcriminaljustice.com/info-plan/imp-dis-rep.html.

State of North Dakota, *North Dakota CJIS Plan, Short-Term Objectives and Current Projects, Reduce Delays in Traffic Citations.*
http://www.ndcriminaljustice.com/ info-plan/red-del-tra-cit.html.

State of North Dakota, *Statewide Budget Initiatives*, November 2000.
http://www.state.nd.us/it/ planning/doc/2000/budget.pdf.

State of North Dakota, *Memorandum of Understanding, North Dakota CJIS Plan*, January 29, 2001.
http://www.ndcriminaljustice.com/gov-structure/mem-und.html.

State of North Dakota, *CJIS Plan*, March 1, 2001.
http:// www.ndcriminaljustice.com/info-plan.

State of North Dakota, *Information Sharing Governance Structure*, Executive Order 2001–01, January 2001.
http://www.ndcriminaljustice.com/gov-structure/ex-order-2001-01.html.

State of North Dakota, *Security Standards*, February 19, 2002.
http://www.state.nd.us/itd/planning/standards-policies/standards/approved/std005-98.doc.

APPENDIX C
CURRENT PROJECT PORTFOLIO

CURRENT PROJECT PORTFOLIO

The current project portfolio, detailed below, outlines the projects under way within the state of North Dakota. These projects represent the present direction and resource commitment to CJIS-related efforts within the state.

A.   STATE'S ATTORNEY

The following projects was identified as an effort that is currently under way or planned by North Dakota's State's Attorneys:

Case Management System Replacement/Implementation[1]

The case management system replacement/implementation project is an effort to replace the current SAMS that is not widely adopted or used within the state. This effort has a project budget of $25,000 to evaluate possible alternatives and determine a course of action for State's Attorneys. The North Dakota State's Attorneys Association is leading a research effort with New Dawn Technologies to evaluate the feasibility of a New Dawn solution. Information gathered from this effort, along with the awareness that it will create for State's Attorneys, will allow the replacement project to take a more formalized approach to the identification and acquisition of a solution for State's Attorneys' needs. Additional grant funding may be available for part of the system implementation costs; however, overall funding has not been identified.

B.   COURT ADMINISTRATOR

The following projects were identified as efforts that are currently under way or planned by the Court Administrator's Office. EXHIBIT C-1, which follows this appendix, provides the latest summary report to the Legislative Information Technology Committee, given on January 29, 2002.

1.   Data Warehouse[2]

The primary objective of this project is to provide easy access to court calendars, statistical data, and other public information to court personnel and CJIS partners via a Web browser. Most court

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[1]   Interview with Mr. Wade Enget, State's Attorney, Mountrial County, December 18, 2001.

[2]   *North Dakota CJIS Plan, Short-Term Objectives and Current Projects, Improve Access to Court Information*, State of North Dakota, *http://www.ndcriminaljustice.com/info-plan/imp-acc-cou-inf.html*.

information is, by law, public information. To date, public access to this information has been controlled either by requiring an in-person visit in the case of public inquiries or through electronic access to authorized users. This limitation minimizes usage of the information both by the public and the criminal justice community. Better access to court information will benefit State's Attorneys and law enforcement, corrections, and safety agencies. This project involves making court information available via a Web browser in an easy-to-use format using data warehouse technologies. The data warehouse will contain information from all courts using UCIS. The first phase of this project was scheduled for completion by September 2001. The project budget includes $79,800 for services and tools but will be completed using existing staff resources from the State Court Administrator's Office and one contract staff person.

2.   Protections Order System (With BCI)[3]

The primary objective of this project is to put critical information from protection orders into the hands of law enforcement. Access to protection order information must be timely when law enforcement officers are involved in situations with individuals named in the protection order. Secondary objectives are to increase the number of protection orders reported and to send protection order information from BCI to the FBI, as mandated. All too frequently, law enforcement officials are involved in situations where victims indicate that a protection order exists but the record of it cannot be found immediately. In other cases, the officer is aware of the protection order but does not have critical information like required distance from the victim. All protection orders need to be reported to the central repository in a timely manner and the full text of the protection order needs to be available.

In order to improve the sharing of protection order information, the full text of protection orders will need to be entered into an accessible system, and processes for reporting protection orders will need to change. Currently, delays exist in the process between the time the court issues the order and it is made available through NDLETS. Delays also exist in contacting the agency serving the order and obtaining the copy of the order. By state law, BCI maintains the list of protection orders. The information is currently stored in the Warrants system, but BCI plans to implement a new system specifically for protection orders. A required interface to the FBI will be built as part of this project. Based on implementing a near-term option, this project will require approximately 1 year to complete. The changes required for UCIS should be completed by April 1, 2002.

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3   *North Dakota CJIS Plan, Short-Term Objectives and Current Projects, Improve Access to Protection Orders*, State of North Dakota, *http://www.ndcriminaljustice.com/info-plan/imp-acc-to-pro-ord.html*.

3.   UCIS Expansion[4]

UCIS will be expanded to include Cass County through the PCSS and UCIS integration project. Currently, Cass County uses PCSS, a separate IS. This project will integrate Cass County into UCIS while maintaining the integration currently enjoyed by Cass County as provided by PCSS. In addition, 10 other counties will be added to UCIS. The Court Technology Committee has approved the addition of 10 counties to UCIS by September 1, 2002.[5] These counties were selected based on case filings. In addition, to facilitate support of the protection order system project, UCIS will be enhanced to maintain the full-text of protection orders. The changes required for UCIS should be completed by April 1, 2002. The project budget and scope are included in the details for the protection order system project.

4.   Interfaces With the DOCR and Department of Health

Recently, the judicial branch automated the process for submitting divorce requests to the Department of Health. The Department of Health is responsible for maintaining "vital records" which include divorce records. In the past, the court clerk would create a case in UCIS for the divorce. Separately, the clerk would type or otherwise fill out the required Department of Health form and send it to the Department of Health, where the information would be entered into its database. The clerk now creates the case and enters all the relevant information into the case before it is sent to the Department of Health electronically, eliminating the redundant data entry. In addition to that improvement, the judicial branch is currently working to interface with DOCR to create access to the ledger card, which tracks the conditions of the sentence. Both of these efforts represent continuous improvement activities within the judicial branch.

5.   Citation Reporting With DOT[6]

The primary objective of this project is to reduce delays in processing traffic citations. The current manual process creates situations where courts receive the payment for the citation prior to receipt of the citation. The courts are unable to answer questions from citizens about a particular citation until the citation is received at their location, often several days after the citation was written. Because citations are processed in the county where they are issued, state patrol and other law enforcement officers must be cognizant of county boundaries and file paperwork to the correct location. Citizens

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[4]   *North Dakota CJIS Plan, Short-Term Objectives and Current Projects, Improve Access to Protection Orders*, State of North Dakota, *http://www.ndcriminaljustice.com/info-plan/con-cou-inf.html*.

[5]   The addition of PCSS and 10 other counties will raise the total number of counties using UCIS to 40. Those 40 counties account for 97.5% of the total case filings in North Dakota, according to 2000 statistics. (This does not include Administrative Traffic filings).

[6]   *North Dakota CJIS Plan Short-Term Objectives and Current Projects Reduce Delays in Traffic Citations*, State of North Dakota, *http://www.ndcriminaljustice.com/info-plan/red-del-tra-cit.html*.

can be confused about whom they should contact with questions about citations. Because more than 95 percent of offenders pay the citation without contesting it, they expect the transaction to be fast and easy. This project will be accomplished in a phased approach.

The first phase is the implementation of a citation system for NDHP discussed below. The second and third phases include activities to study the feasibility of additional process improvements and recommend changes. Phase 1 of this project began in June 2000 and will be completed by June 2001. The second phase of this project is to explore the possibility of implementing the citation system on a statewide basis for local law enforcement agencies. The third phase, also described below, is to evaluate the processing of citations from the standpoint of the courts and DOT to streamline the process. The improvements from the court's perspective will be realized by directly transferring information to UCIS, thus eliminating data redundancy and improving the accuracy of these records.

C. HIGHWAY PATROL

The following projects were identified as efforts that are currently under way or planned by NDHP.

1. Citation Module[7]

The citation module project within the DOT citation reporting project involves collecting citation information at the point of origin, the officer's car, or as soon thereafter as possible. Once collected electronically, the information can be shared with other agencies without reentering it. The NDHP Office will develop and implement a system for entering citations into MDCs in their cars. For officers without MDCs, information will be entered at the NDHP office. Once entered, the citation information is shared with DOT for processing against driver's license data. It is also tied to the NDHP activity and case management databases. The project budget is estimated to be $75,000.

2. MDC Deployment (With State Radio)[8]

The pilot project to implement MDCs in NDHP vehicles has been extremely positive. Officers find that they spend an additional 1 hour per person per shift in the car rather than in the office doing paper work. This project will expand the coverage to other areas of the state under the Radio Network Upgrade project, discussed below. Providing the MDC technology through state radio also

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[7] *North Dakota CJIS Plan Short-Term Objectives and Current Projects Reduce Delays in Traffic Citations*, State of North Dakota, *http://www.ndcriminaljustice.com/info-plan/red-del-tra-cit.html*.

[8] *Statewide Budget Initiatives*, State of North Dakota, November 2000, Refer to project number 12 at *http://www.state.nd.us/itd/planning/doc/2000/budget.pdf*.

makes it available to local law enforcement agencies where the radio data towers are located. The estimate project budget for this effort is $480,892.

D.   STATE RADIO

The following project was identified as an effort that is currently under way by North Dakota's Office of Management and Budget, State Radio Communications.

Radio Network Upgrade[9]

Radio communications technology is moving from analog to digital and at some point will be required by the FCC. This massive project will need to be accomplished over a number of years. Continuous planning will be an important part of this endeavor so that local, state, and federal public safety entities can participate in and migrate to newer mobile radio technologies with minimal impact on existing services. This project is expected to include an engineering study and identify all communications requirements. This project supplements the NDHP MDC Deployment project. The preliminary budget estimated for the project is $400,000.

E.   BUREAU OF CRIMINAL INVESTIGATION

The following projects were identified as efforts that are currently under way or planned by BCI.

1.   Concealed Weapons Permits

This project will rewrite the current concealed weapon permit application into a client-server and Web-based application. In addition, it will incorporate the changes to Training Academy training and certification records regarding instructors with the concealed weapon permit. The system will generate automatic record checks behind the scenes in support of business processes. The new application will have links to state radio requests so that concealed weapon permit information will be available on warrant checks and criminal record checks. The project is currently in the planning stage. Funding is provided under an NCHIP grant for the majority of the project; however, some funds will come out of general funds provided for system rewrites. The development of the application will be completed by contractors under the direction of a project manager from NDAG.

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[9]   *Statewide Budget Initiatives*, State of North Dakota, November 2000, Refer to project number 13 at *http://www.state.nd.us/itd/planning/doc/2000/budget.pdf*.

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2.   UCR Rewrite

The current UCR program resides on three different platforms and requires considerable support effort and staff resources. This project will research coordinating an effort among local law enforcement offices to select a software package that will provide case management to their office and generate the statistics needed by BCI. This project will also cover the statistical needs of the domestic violence reporting done by NDAG's office. BCI will build the state repository of statistic information and the interfaces needed to get this information from the local offices to the state repository. Currently, North Dakota gathers statistics for several items not included in the federal requirements. Software vendors have not expressed an interest to modify their programs to handle all the individual North Dakota requirements. These requirements and the business case for their use will be examined as part of this effort. There are several current processes that need to be reviewed and decisions made regarding whether they should change. This process may require changes to existing laws. This project is funded within the current operating budget, general fund, and some National Criminal History Improvement Program (NCHIP) funds.

3.   Protection Order System[10]

Please see Section B, Project 1 for a description of this project.

4.   Criminal History Quality Improvement Effort

North Dakota AFIS information is currently stored in Minnesota's AFIS database, which is planned for an upgrade this year. In addition, North Dakota stores electronic copies of all fingerprint cards on an archive server. This server performs all the communication with the Minnesota AFIS. The communication with the FBI's IAFIS is performed through the FBI's IDIS. The IDIS system submits civil fingerprint card searches and forwards all criminal IAFIS transactions from the North Dakota archive server to the FBI. This project is focused on planning for those changes and any upgrades to the Live-Scan system and AFIS or configurations because of changes that will be made by Minnesota. North Dakota will maintain the current AFIS archive server under any planned upgrade by Minnesota. The archive server will continue to perform all communication with the Minnesota AFIS system for the purpose of searching the three-state database. North Dakota will install new AFIS workstations that will contain the capability of creating the civil fingerprint search transactions. Work flow modifications to the North Dakota archive server will replace the IDIS server. With the upgrade, the North Dakota archive server will perform all communication functions with the IAFIS system.

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[10]   *North Dakota CJIS Plan, Short-Term Objectives and Current Projects, Improve Access to Protection Orders*, State of North Dakota, *http://www.ndcriminaljustice.com/info-plan/imp-acc-to-pro-ord.html*.

5.   Automated Disposition Reporting[11]

The primary objective of this project is to improve the timeliness of disposition reporting in the Computerized Criminal History (CCH) system at BCI. Secondary benefits will be the elimination of duplicate data entry of dispositions, greater accuracy, and more complete reporting. According to the Survey of State Criminal History Information Systems conducted by SEARCH in 1999, the average time between receipt of final felony court disposition and entry into the criminal history database is 90 days. The same report indicates that 78 percent of arrests recorded within the last 5 years have final dispositions recorded. BCI, through a manual process, receives information from the State's Attorney and enters it into the CCH system. The courts, in a separate process, also enter disposition information into UCIS. The two systems do not share information. Law enforcement agencies benefit when disposition information is entered because criminal history checks will give a complete picture of felony arrests. In addition, statistical reporting will provide better information on conviction rates.

In order to improve disposition reporting, a mechanism will be built to extract disposition information from UCIS for input into the CCH system. This implies that processes for collecting disposition data will also have to be changed. An analysis of the current processes and proposed changes will be completed. The analysis will identify issues surrounding the proposed changes, such as shifting data entry and coding responsibilities to the court clerks, before selecting the best alternative. The need for the State's Attorneys to enter or modify information for declinations, additional charges, or modified charges will be analyzed and included in the design, if necessary. This project will require approximately 1 year to complete. The project budget includes $320,272 and will be completed using existing funding sources.

6.   Case Management System Improvements

The current case management system used by BCI is old and cumbersome; however, at this time there are no funds available to rewrite the system. The vision for this project is to provide an agencywide system, where documents can be shared between divisions. Several divisions, such as Gaming, Licensing, and Fire Marshal, may have investigations that turn into criminal investigations with BCI. This new system is also envisioned to provide a statewide indexing system for case management systems across the state, so that a search could be performed using certain parameters and the index would point to cases across the state that match the criteria. This will be a multiyear project.

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[11]   *North Dakota CJIS Plan, Short-Term Objectives and Current Projects Improve Disposition Reporting*, State of North Dakota, *http://www.ndcriminaljustice.com/info-plan/imp-dis-rep.html*.

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F. DEPARTMENT OF TRANSPORTATION

The following projects were identified as efforts that are currently under way or planned by North Dakota's DOT.

1. Electronic Document Management System[12]

This initiative includes the funding to develop and support a centralized Electronic Document Management System (EDMS) infrastructure for North Dakota state agencies. This infrastructure would be centrally managed by ITD with the cost billed back to the participating agencies, versus implementing similar technologies locally in each agency. The overall focus of this project is the implementation of a centralized EDMS. The EDMS project budget is estimated to be $1,309,317.

2. Citation Reporting With the Judicial Branch[13]

The third phase within the DOT citation reporting project will evaluate the processing of citations from the courts' and DOT's perspective with the objective of streamlining the process. Currently, the courts manually enter the citation disposition information from each of the 29 counties on UCIS into the system and process payment receipts. For the other counties, the information is not entered. Hearings are scheduled if requested. This happens for less than 5 percent of citations. Dispositions of the citations are sent electronically to DOT to match against the driving record of the offender. Options will be explored to electronically transmit the citations from local law enforcement so the courts do not have to reenter the citations. A pilot project using NDHP information will be considered to demonstrate feasibility. The project budget is estimated to be $150,000.

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[12] *Statewide Budget Initiatives*, State of North Dakota, November 2000, Refer to project number 8 in *http://www.state.nd.us/itd/planning/doc/2000/budget.pdf*.

[13] *North Dakota CJIS Plan, Short-Term Objectives and Current Projects Reduce Delays in Traffic Citations*, State of North Dakota, *http://www.ndcriminaljustice.com/info-plan/red-del-tra-cit.html*.

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EXHIBIT C-1
Page 1 of 5

Integration Projects of the Judicial Branch
Information Technology Committee Update
January 29, 2002[1]

Integration is the driving force behind many of the initiatives being pursued by the Information Technology Department of the Judicial Branch.

East Central Judicial District Integration.
Currently, six of seven Judicial Districts are using a case management system called the Unified Court Information System (UCIS). Included in our Technology Plan for last biennium was a project and funding to integrate the seventh Judicial District into the system used by the other districts. Several factors did not allow the completion of that project. However, the 2001 Legislature saw fit to "roll" the funds for this project over from the last biennium to the 2001-2003 biennium. Because of that action, I am now able to report that the project to integrate the seventh judicial district into UCIS is going very well. We are on track financially and on schedule, with an expected completion date of December 31, 2002. Since the issuance of a contract to Enterprise Solutions Inc last fall, we have been meeting with personnel from Cass County and the East Central Judicial District to identify and address necessary program changes, data conversion processes, network accessibility needs and other issues.

The data sharing implications for completion of this project are far reaching. A single inquiry will then be able to provide criminal disposition and other case related results for all districts statewide. Traffic citation data transferred to the Department of Transportation will then include East Central Judicial District. Divorce information transferred to the Department of Health will then include information from the East Central Judicial District.

Because of differences in interpreting large project reporting requirements, this project was not initially included in the Large Project report for the Integration Project. Last Monday, representatives of the Executive Branch Information Technology Department (ITD) and the Judicial Branch met to discuss reporting requirements. As a result of that meeting, this project will be included in the large project report for the Integration Project.

Increasing the number of counties using the Unified Court Information System.
In an effort to facilitate case load processing for more of the counties in North Dakota, we are adding counties to UCIS this biennium. Over the past few months, 5 counties have been added, with 5 additional counties to be added by September 1, 2002. (See Attached: Deployment of the Unified Court Information System).

By addition of these 10 counties, along with the addition of Cass County through the integration project, 97.5% of the court filings will be through UCIS counties.[2] All counties with more than 200 filings per year will be using UCIS. There will be 13 remaining counties that do not use UCIS for their daily workload processing. Those counties account for 2.5 percent of the overall statewide caseload.[3] The possible deployment of UCIS to those 13 counties will be reviewed by the Court Technology Committee in late 2002.

Historically, there have been several hurdles to adding counties to UCIS, including equipment costs, setup costs, training costs, support costs and telecommunications charges. Working with the Executive Branch ITD, we have been able to modify our billing arrangements to a flat-rate for the entire Judicial Branch. This means that as counties are added to UCIS, the telecommunications charges will not increase, thereby removing one hurdle.

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[1] Included with the permission of Kurt Schmidt.
[2] Based on 2000 case filing statistics.
[3] Counties not using UCIS for their daily workflow complete a statistical coversheet for each case. That coversheet's information is then entered into UCIS to provide a complete set of statewide statistics.

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EXHIBIT C-1
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Grand Forks County Integration.
Although Grand Forks County has been using UCIS for many years, they have been using the system on the AS400 owned by Grand Forks County. This has been done to facilitate data exchange between the State's Attorney computer system and UCIS. We are now in the process of integrating Grand Forks County into the Judicial AS400 in Bismarck while still maintaining the data transfer processes with the State's Attorney. We expect to complete this project in February, 2002.

Data Sharing with other entities.
As more counties begin using the system, the data available from that system becomes more valuable to the Judicial Branch and agencies from other branches of government. In an effort to provide easier access to the information, several initiatives are in process.

The first is the creation of a data warehouse. We have set up a web server to serve a duplicate copy of much of the UCIS data to appropriate law enforcement and criminal justice agencies. This allows us to provide access to the information through a standard internet web browser while maintaining the security and integrity of the actual UCIS system itself. We have recently completed the pilot phase of the warehouse and have been adding users from the Department of Corrections, law enforcement, and State's Attorneys this month.

Based on the results of initial users, we expect to expand the information available in the coming months to include more reporting and inquiry abilities.

The second information sharing project we are working on includes the Bureau of Criminal Investigation (BCI) and State Radio. It is a project to provide the full text of protection orders to law enforcement personnel. UCIS is currently being modified to include the complete text of a protection order which will be automatically sent to BCI, who maintains the state repository for protection orders. Through State Radio, law enforcement personnel can retrieve the full text of protection orders from BCI's protection order database. This data can also feed the National Protection Order Registry maintained by the FBI. We expect to have this system fully operational by July 1, 2002.

The third information sharing project we are planning is an interface to the Highway Patrol's automated citation system. It is our goal to have data automatically transferred from the citation system directly into UCIS, eliminating the need to re-enter the data.

For several years, the Judicial Branch has been providing traffic citation disposition information to the Department of Transportation, who in turn provides that information to the Highway Patrol. Completion of this project will "close the loop" on citation processing. Data will automatically and electronically flow from the Highway Patrol to the Judicial Branch to The Department of Transportation and finally back to the Highway Patrol. As more agencies, Sheriffs and local Police Departments are given access to this system, the benefits continue to grow as the redundant data entry continues to decrease.

Recently completed was a similar process to send divorce information electronically to the Health Department, thereby eliminating the need for the data to be entered multiple times by separate people in different government entities.

Criminal Justice Information System.
The Administrative Office of the Judicial Branch continues to work with the Executive Branch Information Technology Department and criminal justice agencies on the Criminal Justice Information System (CJIS) project. The broader goals of this project are to facilitate data exchange between criminal justice entities.

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Deployment of the

Unified Court Information System (UCIS)
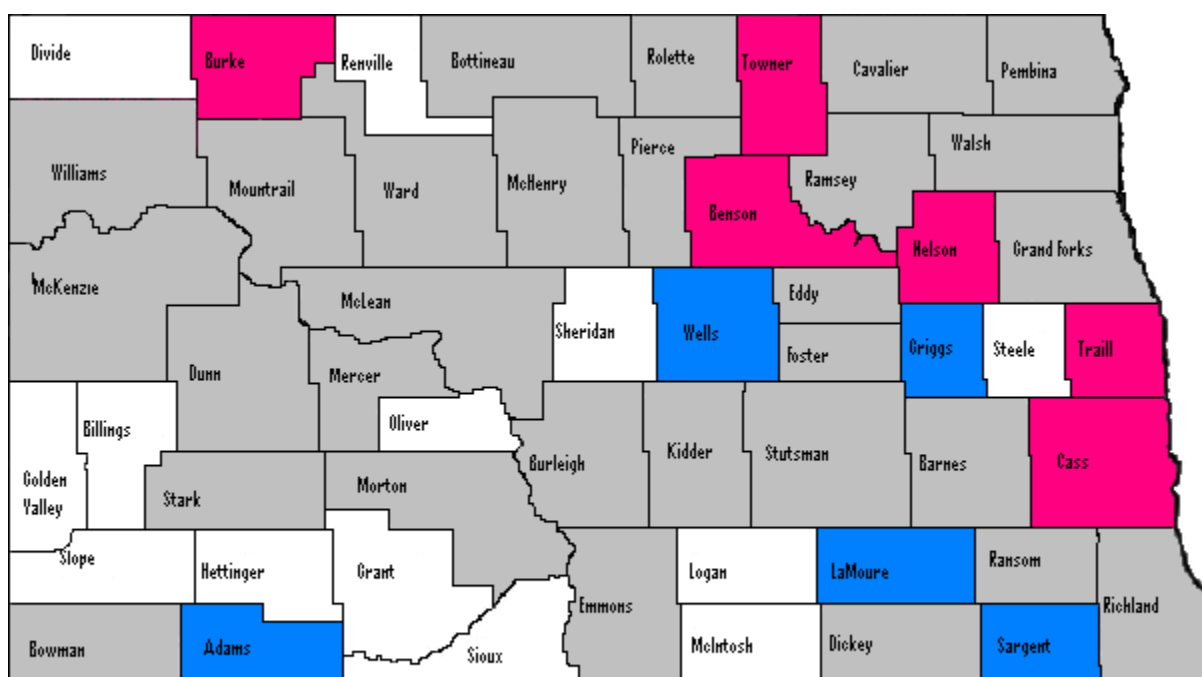
Legend:

Gray indicates counties currently using UCIS
Blue indicates counties added to UCIS within the past 3 months
Red indicates counties to be added to UCIS in 2002
White indicates counties not currently using UCIS. (To be reviewed mid 2002)

January 28, 2002

EXHIBIT C-1
Page 4 of 5

2000 Filings by County (ranked by volume)
* Indicates Current UCIS Counties | #1 - #10 indicate counties to add

	2000 Filings	Civil	Criminal	Juvenile	Total
	Cass	7926	3984	572	12482
*	Grand Forks	3226	3964	345	7535
*	Burleigh	3038	2022	230	5290
*	Ward	2838	2066	138	5042
*	Stutsman	1311	1404	66	2781
*	Morton	1211	1270	76	2557
*	Stark	995	1478	79	2552
*	Williams	1225	1132	85	2442
*	Ramsey	779	1198	185	2162
*	Richland	854	912	57	1823
*	Walsh	683	1024	38	1745
*	Barnes	615	732	37	1384
*	Pembina	439	594	26	1059
*	Rolette	370	549	41	960
1	Traill	315	401	26	742
*	Bottineau	244	459	31	734
*	McLean	273	417	16	706
*	Ransom	256	341	10	607
*	Mercer	307	246	11	564
*	McHenry	219	336	8	563
*	McKenzie	245	290	9	544
2	Benson	235	266	19	520
*	Dickey	271	234	12	517
3	Sargent	174	323	8	505
*	Mountrail	231	228	7	466
*	Pierce	256	189	15	460
4	Wells	225	211	9	445
*	Foster	219	163	0	382
*	Cavalier	182	192	4	378
*	Dunn	124	237	1	362
5	Burke	101	236	2	339
*	Eddy	84	217	6	307
6	Nelson	136	158	6	300
7	LaMoure	120	161	6	287
8	Adams	165	118	4	287
*	Emmons	167	102	3	272
9	Griggs	152	112	6	270
*	Bowman	117	147	5	269
10	Towner	122	134	6	262
*	Kidder	144	102	2	248
	Renville	90	96	2	188
	McIntosh	94	84	1	179
	Divide	102	62	10	174
	Golden Valley	48	107	3	158
	Hettinger	78	56	4	138
	Steele	43	69	2	114
	Grant	74	36	1	111
	Sheridan	58	46	1	105
	Oliver	64	28	7	99
	Logan	49	34	1	84

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Billings	28	54	0	82
Sioux	41	32	1	74
Slope	28	22	0	50
GRAND TOTALS	**31,391**	**29,075**	**2,240**	**62,706**
Non-UCIS Counties	**2.5%**	**2.5%**	**1.5%**	**2.5%**

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APPENDIX D
<u>SUMMARY OF INFORMATION EXCHANGES FOR LEVEL 1 PROCESSES</u>

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT
SUMMARY OF INFORMATION EXCHANGES FOR LEVEL 1 PROCESSES

Process	Method of Exchange			
	Push/Pull	**Publish/Query**	**Subscription/ Notification**	**Other**
Event Reporting				
Call for Service Received				
Type A		1		
Type C	1			
Total	**1**	**1**		
Respond to Call for Service				
Type A		3		
Type B			1	
Type C	2			
Total	**2**	**3**	**1**	
Create an Incident				
Type B	1			
Type C	2			
Total	**3**			
Call for Service Closed				
Type C	1			
Total	**1**			
Crime Report Filed With BCI				
Type A		1		
Type C	5			
Total	**5**	**1**		

LEGEND:
  Type A: Rating = 9. High Benefit/Low Complexity.
  Type B: Rating = 4-6. High Benefit/Medium Complexity, Medium Benefit/Low Complexity, Medium Benefit/Medium Complexity.
  Type C: Rating = 1-3. High Benefit/High Complexity, Medium Benefit/High Complexity, Low Benefit/Low Complexity,
                Low Benefit/Medium Complexity, Low Benefit/High Complexity.
  N/A: Not rated.

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STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT
SUMMARY OF INFORMATION EXCHANGES FOR LEVEL 1 PROCESSES

Process	Method of Exchange			
	Push/Pull	Publish/Query	Subscription/Notification	Other
Investigation				
Investigate the Incident				
Type A		4		
Type B	1	3		
Type C		1	2	
Total	**1**	**8**	**2**	
Process Evidence and Property				
Type A		1		
Type C	4		3	
Total	**4**	**1**	**3**	
Get Search Warrant				
Type C	2			
Total	**2**			
Execute Search Warrant				
Type C	1			
Total	**1**			

LEGEND:
  Type A: Rating = 9. High Benefit/Low Complexity.
  Type B: Rating = 4-6. High Benefit/Medium Complexity, Medium Benefit/Low Complexity, Medium Benefit/Medium Complexity.
  Type C: Rating = 1-3. High Benefit/High Complexity, Medium Benefit/High Complexity, Low Benefit/Low Complexity,
                    Low Benefit/Medium Complexity, Low Benefit/High Complexity.
  N/A: Not rated.

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STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT
SUMMARY OF INFORMATION EXCHANGES FOR LEVEL 1 PROCESSES

Process	Method of Exchange			
	Push/Pull	**Publish/Query**	**Subscription/ Notification**	**Other**
Arrest				
Arrest Subject				
Type A		1		
Type C	5			
Total	**5**	**1**		
Quash Warrant				
Type B	1			
Type C	1		2	
Total	**2**		**2**	
Process Subject (Booking)				
N/A				2
Type C	1		1	
Total	**1**		**1**	**2**
Identify Individual				
Type B	1			
Type C	1			
Total	**2**			
Add/Update Criminal History				
Type B	2			
Type C	2			
Total	**4**			

LEGEND:
  Type A: Rating = 9. High Benefit/Low Complexity.
  Type B: Rating = 4-6. High Benefit/Medium Complexity, Medium Benefit/Low Complexity, Medium Benefit/Medium Complexity.
  Type C: Rating = 1-3. High Benefit/High Complexity, Medium Benefit/High Complexity, Low Benefit/Low Complexity,
                Low Benefit/Medium Complexity, Low Benefit/High Complexity.
  N/A: Not rated.

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STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT
<u>SUMMARY OF INFORMATION EXCHANGES FOR LEVEL 1 PROCESSES</u>

Process		Method of Exchange			
		Push/Pull	**Publish/Query**	**Subscription/ Notification**	**Other**
Detention					
Subject Detained After Booking					
	Type B		2		
	Type C	1			
	Total	**1**	**2**		
Subject Detained After First Appearance					
	Type C	1			
	Total	**1**			
Maintain Subject Location					
	Type B		1		
	Type C	1		2	
	Total	**1**	**1**	**2**	
Judicial Review of Detention					
	Type B	1	1		
	Type C	1			
	Total	**2**	**1**		
Bring Subject to Court Appearances					
	Type C			1	
	Total			**1**	
Notification of Expiring Hold/Release					
	Type C	2		1	
	Total	**2**		**1**	

LEGEND:
  Type A: Rating = 9. High Benefit/Low Complexity.
  Type B: Rating = 4-6. High Benefit/Medium Complexity, Medium Benefit/Low Complexity, Medium Benefit/Medium Complexity.
  Type C: Rating = 1-3. High Benefit/High Complexity, Medium Benefit/High Complexity, Low Benefit/Low Complexity,
                Low Benefit/Medium Complexity, Low Benefit/High Complexity.
  N/A: Not rated.

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STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT
SUMMARY OF INFORMATION EXCHANGES FOR LEVEL 1 PROCESSES

Process	Method of Exchange			
	Push/Pull	**Publish/Query**	**Subscription/ Notification**	**Other**
Detention				
Release Subject				
Type A		1		
Type C	2		1	
Total	**2**	**1**	**1**	
Report Detention Information to State				
Type C	3			
Total	**3**			

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SUMMARY OF INFORMATION EXCHANGES FOR LEVEL 1 PROCESSES

Process		Method of Exchange			
		Push/Pull	Publish/Query	Subscription/ Notification	Other
Filing					
Law Enforcement Charging Decision					
	Type B	4			
	Type C	1			
	Total	**5**			
Referral to Prosecution					
	Type A		3		
	Type B	1	4		
	Type C	1	1	1	
	Total	**2**	**8**	**1**	
Prosecution Charging Decision					
	Type B	3			
	Type C	1			
	Total	**4**			
File Arrest Disposition Report					
	Type B	2			
	Total	**2**			

LEGEND:
  Type A: Rating = 9. High Benefit/Low Complexity.
  Type B: Rating = 4-6. High Benefit/Medium Complexity, Medium Benefit/Low Complexity, Medium Benefit/Medium Complexity.
  Type C: Rating = 1-3. High Benefit/High Complexity, Medium Benefit/High Complexity, Low Benefit/Low Complexity,
                  Low Benefit/Medium Complexity, Low Benefit/High Complexity.
  N/A: Not rated.

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STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT
SUMMARY OF INFORMATION EXCHANGES FOR LEVEL 1 PROCESSES

Process		Method of Exchange			
		Push/Pull	**Publish/Query**	**Subscription/ Notification**	**Other**
Adjudication					
Open a Court Case					
	N/A				1
	Type B	3			
	Type C	3			
	Total	**6**			**1**
Pretrial Evaluation					
	Type B		1		
	Total		**1**		
First Appearance					
	Type B	2			
	Type C	4		2	
	Total	**6**		**2**	
Adult Certification Hearing					
	Type C	4	1		
	Total	**4**	**1**		
Notify Participating Agencies of Case Scheduling					
	Type A		1		
	Type B		1		
	Type C	1		2	
	Total	**1**	**2**	**2**	

LEGEND:
  Type A: Rating = 9. High Benefit/Low Complexity.
  Type B: Rating = 4-6. High Benefit/Medium Complexity, Medium Benefit/Low Complexity, Medium Benefit/Medium Complexity.
  Type C: Rating = 1-3. High Benefit/High Complexity, Medium Benefit/High Complexity, Low Benefit/Low Complexity,
                Low Benefit/Medium Complexity, Low Benefit/High Complexity.
  N/A: Not rated.

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Process	Method of Exchange			
	Push/Pull	**Publish/Query**	**Subscription/ Notification**	**Other**
Adjudication				
Arraignment and Hearings Before Trial				
Type A			1	
Type B	2			
Type C	4			
Total	**6**		**1**	
Trial				
Type A			1	
Type B	2			
Type C	2		3	
Total	**4**		**4**	
Presentencing Investigation				
Type A		2		
Type B	1	1		
Type C			1	
Total	**1**	**3**	**1**	
Sentencing/Disposition				
Type C	3	1		
Total	**3**	**1**		
Dispose of Charges				
Type B	3			
Type C	3	1		
Total	**6**	**1**		

LEGEND:
  Type A: Rating = 9. High Benefit/Low Complexity.
  Type B: Rating = 4-6. High Benefit/Medium Complexity, Medium Benefit/Low Complexity, Medium Benefit/Medium Complexity.
  Type C: Rating = 1-3. High Benefit/High Complexity, Medium Benefit/High Complexity, Low Benefit/Low Complexity,
                  Low Benefit/Medium Complexity, Low Benefit/High Complexity.
  N/A: Not rated.

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STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT
<u>SUMMARY OF INFORMATION EXCHANGES FOR LEVEL 1 PROCESSES</u>

Process		Method of Exchange			
		Push/Pull	**Publish/Query**	**Subscription/ Notification**	**Other**
Disposition					
Collect Fees, Cost, Fines, and Restitution					
	Type B	1			
	Type C	1	1		
	Total	**2**	**1**		
Probation/Supervised Release Programs					
	Type A		2		
	Type B	3	2		
	Total	**3**	**4**		
Interstate Transfer					
	Type C	2		1	
	Total	**2**		**1**	
Administer Terms of Probation, Supervised Release, Restitution					
	Type A		4		
	Type B	2	3		
	Type C	3		5	
	Total	**5**	**7**	**5**	
Incarceration					
	Type A		1		
	Type B		3		
	Type C	4	1	2	
	Total	**4**	**5**	**2**	

LEGEND:
  Type A: Rating = 9. High Benefit/Low Complexity.
  Type B: Rating = 4-6. High Benefit/Medium Complexity, Medium Benefit/Low Complexity, Medium Benefit/Medium Complexity.
  Type C: Rating = 1-3. High Benefit/High Complexity, Medium Benefit/High Complexity, Low Benefit/Low Complexity,
                Low Benefit/Medium Complexity, Low Benefit/High Complexity.
  N/A: Not rated.

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STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT
SUMMARY OF INFORMATION EXCHANGES FOR LEVEL 1 PROCESSES

Process	Method of Exchange			
	Push/Pull	**Publish/Query**	**Subscription/ Notification**	**Other**
Disposition				
Administer Terms of Incarceration				
Type A		2		
Type B	1	4		
Total	**1**	**6**		
Disposition Review/Revocation or Complete				
Type B	9			
Type C	1		7	
Total	**10**		**7**	

LEGEND:
  Type A: Rating = 9. High Benefit/Low Complexity.
  Type B: Rating = 4-6. High Benefit/Medium Complexity, Medium Benefit/Low Complexity, Medium Benefit/Medium Complexity.
  Type C: Rating = 1-3. High Benefit/High Complexity, Medium Benefit/High Complexity, Low Benefit/Low Complexity,
              Low Benefit/Medium Complexity, Low Benefit/High Complexity.
  N/A: Not rated.

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STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT
SUMMARY OF INFORMATION EXCHANGES FOR LEVEL 1 PROCESSES

Process	Method of Exchange			
	Push/Pull	**Publish/Query**	**Subscription/ Notification**	**Other**
Other Programs				
Precharging Diversion				
Type B	2			
Type C	2		1	
Total	**4**		**1**	
Postcharging Diversion				
Type B	5			
Type C			1	
Total	**5**		**1**	
Administer Diversion				
Type A		1		
Type B		1		
Type C	6		1	
Total	**6**	**2**	**1**	
Training Programs				
Type A		1		
Total		**1**		
Administer Training Programs				
Type C	2		1	
Total	**2**		**1**	
Total for All Processes	**140**	**63**	**44**	**3**

LEGEND:
  Type A: Rating = 9. High Benefit/Low Complexity.
  Type B: Rating = 4-6. High Benefit/Medium Complexity, Medium Benefit/Low Complexity, Medium Benefit/Medium Complexity.
  Type C: Rating = 1-3. High Benefit/High Complexity, Medium Benefit/High Complexity, Low Benefit/Low Complexity,
                    Low Benefit/Medium Complexity, Low Benefit/High Complexity.
  N/A: Not rated.

MTG

APPENDIX E
FUTURE EVENT REPORTING PROCESS INFORMATION EXCHANGES

FUTURE EVENT REPORTING PROCESS INFORMATION EXCHANGES

Process: Event Reporting

Level 1 Process: Call for Service Received

Rating	Benefit	Complexity	From	To	Content	Method
9	High	Low	BCI	Local or State Dispatch	Criminal history.	Publish/Query
3	High	High	Law Enforcement	Local or State Dispatch	Officer observed incidents/events. Type of incident/event, officer/unit, vehicle, person, location information.	Push/Pull

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT
FUTURE EVENT REPORTING PROCESS INFORMATION EXCHANGES

Process: Event Reporting
Level 1 Process: Respond to Call for Service

Rating	Benefit	Complexity	From	To	Content	Method
9	High	Low	BCI	Law Enforcement	Wants, warrants, protection order, CCH, Hot File checks.	Publish/Query
9	High	Low	DOT	Law Enforcement	Drivers license, vehicle, snowmobile, and boat registration information.	Publish/Query
9	High	Low	FBI	Law Enforcement	NCIC checks, interstate identification index.	Publish/Query
6	High	Medium	Local or State Dispatch	Probation and Parole	Notification of law enforcement contact with a person on probation or parole.	Subscription/ Notification
3	High	High	Law Enforcement Agency	Local or State Dispatch	Responding unit(s), location information.	Push/Pull
3	High	High	Local or State Dispatch	Law Enforcement	Additional location and person information.	Push/Pull

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Process: Event Reporting

Level 1 Process: Create an Incident

Rating	Benefit	Complexity	From	To	Content	Method
6	High	Medium	Officer	Law Enforcement Records	Incident report, victim/witness statements.	Push/Pull
3	High	High	Law Enforcement	DOT	Accident report.	Push/Pull
3	High	High	Local or State Dispatch	Law Enforcement	Incident number.	Push/Pull

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT
FUTURE EVENT REPORTING PROCESS INFORMATION EXCHANGES

Process: Event Reporting

Level 1 Process: Call for Service Closed

Rating	Benefit	Complexity	From	To	Content	Method
3	High	High	Law Enforcement	Local or State Dispatch	Closed call information.	Push/Pull

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Process: Event Reporting

Level 1 Process: Crime Report Filed With BCI

Rating	Benefit	Complexity	From	To	Content	Method
9	High	Low	BCI	Local Jail/Detention	Fingerprint card-related information to resolve errors and problems.	Publish/Query
3	High	High	Law Enforcement	BCI	Stolen property.	Push/Pull
3	High	High	Law Enforcement	BCI	Emergency protective orders.	Push/Pull
3	High	High	Law Enforcement	BCI	Arrest Disposition Form information, fixes to case numbers, charge descriptions.	Push/Pull
3	High	High	Law Enforcement Agency	BCI	Summary incident reports (for smaller agencies that cannot do reporting by incident).	Push/Pull
2	Medium	High	Law Enforcement	BCI	Notice of pursuits, firearms use by sworn staff.	Push/Pull

APPENDIX F
FUTURE INVESTIGATION PROCESS INFORMATION EXCHANGES

Process: Investigation

Level 1 Process: Investigate the Incident

Rating	Benefit	Complexity	From	To	Content	Method
9	High	Low	BCI	Law Enforcement	Computerized criminal history and Hot File checks.	Publish/Query
9	High	Low	DOCR Prisons	Law Enforcement	Offender status and history in state prison facilities.	Publish/Query
9	High	Low	DOT	Law Enforcement	Driver/vehicle, drivers license photo, snowmobile and boat registration information.	Publish/Query
9	High	Low	Probation and Parole	Law Enforcement	Probation/parole officer assigned, offender restrictions, address(es), probation/parole information.	Publish/Query
6	High	Medium	DOCR Prisons, Local Jail/Detention	Law Enforcement	Data on offender or offender photo for investigations.	Publish/Query
6	High	Medium	Law Enforcement	Other Law Enforcement Agency	Police reports and case file information.	Publish/Query
6	High	Medium	Local Jail/Detention	Law Enforcement	Offender status and prior history with jail, mug shot.	Publish/Query
6	High	Medium	Officer	Law Enforcement Records	Supplemental reports, victim/witness statements, accident reports.	Push/Pull
3	High	High	Law Enforcement	Prosecution	Results of additional investigation, supplemental reports, missing information.	Subscription/ Notification
3	High	High	Local Jail/Detention	Law Enforcement	Subject and other persons digital photo arrays for photo lineups ("six packs").	Publish/Query
2	Medium	High	Law Enforcement	DHS, Probation and Parole	Suspected child maltreatment.	Subscription/ Notification

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STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT
<u>FUTURE INVESTIGATION PROCESS INFORMATION EXCHANGES</u>

Process: Investigation

Level 1 Process: Process Evidence and Property

Rating	Benefit	Complexity	From	To	Content	Method
9	High	Low	Department of Health Crime Lab	Prosecution, Law Enforcement	Testing status.	Publish/Query
3	High	High	Department of Health Crime Lab	Prosecution, Law Enforcement	Crime lab results reports.	Subscription/ Notification
3	High	High	Department of Health Crime Lab	Prosecution, Law Enforcement	Receipts for items to be tested.	Push/Pull
3	High	High	Law Enforcement	BCI	Validation report on stolen property/vehicles, guns.	Push/Pull
3	High	High	Local Jail/Detention	Law Enforcement	Additional property or evidence found on intake.	Subscription/ Notification
2	Medium	High	Law Enforcement	Department of Health Crime Lab	Crime Lab evidence analysis requests.	Push/Pull
2	Medium	High	Law Enforcement	Local Jail/Detention	Property seized by law enforcement as evidence information.	Push/Pull
2	Medium	High	Prosecution	Law Enforcement, Local Jail/Detention	Disposition of evidence notice.	Subscription/ Notification

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FUTURE INVESTIGATION PROCESS INFORMATION EXCHANGES

Process: Investigation

Level 1 Process: Get Search Warrant

Rating	Benefit	Complexity	From	To	Content	Method
3	High	High	Court	Law Enforcement	Search warrant.	Push/Pull
3	High	High	Law Enforcement	Court	Request for search warrant information.	Push/Pull

FUTURE INVESTIGATION PROCESS INFORMATION EXCHANGES

Process: Investigation

Level 1 Process: Execute Search Warrant

Rating	Benefit	Complexity	From	To	Content	Method
3	High	High	Law Enforcement	Court, Prosecution	Return receipt on search warrant, inventory of items seized.	Push/Pull

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APPENDIX G
FUTURE ARREST PROCESS INFORMATION EXCHANGES

Process: Arrest

Level 1 Process: Arrest Subject

Rating	Benefit	Complexit	From	To	Content	Method
9	High	Low	BCI	Law Enforcement	Wants and warrants check results.	Publish/Query
3	High	High	Court	Probation and Parole, Law Enforcement, Prosecution, BCI	Bench, arrest, juvenile warrant.	Push/Pull
3	High	High	Law Enforcement	Court, BCI	Arrest warrant clearance.	Push/Pull
3	High	High	Law Enforcement	Local Jail/Detention	Arrest report, citation.	Push/Pull
2	Medium	High	Law Enforcement	Prosecution	Request for approval of detention.	Push/Pull
2	Medium	High	Prosecution	Local Jail/Detention, Law Enforcement	Affidavit of detention.	Push/Pull

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STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT
FUTURE ARREST PROCESS INFORMATION EXCHANGES

Process: Arrest
Level 1 Process: Quash Warrant

Rating	Benefit	Complexit	From	To	Content	Method
6	High	Medium	Court	Law Enforcement	Warrant, warrant modification, quash order.	Push/Pull
3	High	High	Law Enforcement	BCI	Modified, cleared and quashed warrants.	Push/Pull
3	High	High	Law Enforcement	Court	Notice of warrant arrest.	Subscription/ Notification
3	High	High	Local Jail/Detention	Court	Notification of detention on an arrest warrant.	Subscription/ Notification

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Process: Arrest

Level 1 Process: Process Subject (Booking)

Rating	Benefit	Complexit	From	To	Content	Method
3	High	High	Local Jail/Detention	Probation and Parole, Law Enforcement, Prosecution	Intakes, bookings, placements.	Subscription/ Notification
2	Medium	High	Prosecution	Law Enforcement, Local Jail/Detention	Approval of detention information.	Push/Pull
0	N/A	N/A	BCI	MN BCA	Fingerprint card.	Other
0	N/A	N/A	Local Jail/Detention	BCI	Fingerprint card.	Other

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STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT
FUTURE ARREST PROCESS INFORMATION EXCHANGES

Process: Arrest
Level 1 Process: Identify Individual

Rating	Benefit	Complexit	From	To	Content	Method
6	High	Medium	AFIS/IAFIS	BCI	Hits on fingerprints including individual identifiers.	Push/Pull
3	High	High	BCI	Law Enforcement, Local Jail/Detention	Hits on fingerprints including individual identifiers (e.g., SID).	Push/Pull

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STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT
FUTURE ARREST PROCESS INFORMATION EXCHANGES

Process: Arrest

Level 1 Process: Add/Update Criminal History

Rating	Benefit	Complexit	From	To	Content	Method
6	High	Medium	BCI	FBI	NCIC updates.	Push/Pull
6	High	Medium	Law Enforcement	BCI	State IBR/UCR reporting.	Push/Pull
3	High	High	Law Enforcement	BCI	Arrest information.	Push/Pull
3	High	High	Law Enforcement	DOT, Highway Patrol	Accident report.	Push/Pull

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APPENDIX H
FUTURE DETENTION PROCESS INFORMATION EXCHANGES

FUTURE DETENTION PROCESS INFORMATION EXCHANGES

Process: Detention

Level 1 Process: Subject Detained After Booking

Rating	Benefit	Complexit	From	To	Content	Method
6	High	Medium	Law Enforcement	Local Jail/Detention	Police report, warrant/warrant service information.	Publish/Query
6	High	Medium	Local Jail/Detention	Law Enforcement, Probation and Parole, Court, Prosecution	Booking information.	Publish/Query
3	High	High	Law Enforcement	Local Jail/Detention, Prosecution	Probable cause authority to detain/hold.	Push/Pull

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Process: Detention

Level 1 Process: Subject Detained After First Appearance

Rating	Benefit	Complexit	From	To	Content	Method
3	High	High	Court	Local Jail/Detention, Probation and Parole, Law Enforcement, Prosecution	Detention order.	Push/Pull

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FUTURE DETENTION PROCESS INFORMATION EXCHANGES

Process: Detention

Level 1 Process: Maintain Subject Location

Rating	Benefit	Complexit	From	To	Content	Method
6	High	Medium	Local Jail/Detention	Interested Justice Agencies, DHS	Daily detention population, detention location of individual, information on detained individuals.	Publish/Query
3	High	High	Law Enforcement, Probation and Parole	Local Jail/Detention	Request to be notified if a person of interest is detained.	Subscription/ Notification
3	High	High	Local Jail/Detention	Law Enforcement, Probation and Parole	Notification when a person of interest is detained.	Subscription/ Notification
2	Medium	High	Local Jail/Detention	Other Local Jail/Detention, Court, Prosecution	Transfer orders.	Push/Pull

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STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT
FUTURE DETENTION PROCESS INFORMATION EXCHANGES

Process: Detention
Level 1 Process: Judicial Review of Detention

Rating	Benefit	Complexit	From	To	Content	Method
6	High	Medium	Court	Local Jail/Detention	Orders for release or detention.	Push/Pull
6	High	Medium	Law Enforcement	Court	Incident data, arrest report.	Publish/Query
2	Low	Medium	Probation and Parole	Court	Pre-trial evaluation report.	Push/Pull

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Process: Detention

Level 1 Process: Bring Subject to Court Appearances

Rating	Benefit	Complexit	From	To	Content	Method
3	High	High	Court	Local Jail/Detention	Court calendar, notice of hearing, order for production.	Subscription/ Notification

Process: Detention

Level 1 Process: Notification of Expiring Hold/Release

Rating	Benefit	Complexit	From	To	Content	Method
3	High	High	Court	Local Jail/Detention	Court order for continuation of detention, release order.	Push/Pull
3	High	High	Local Jail/Detention	Court, Prosecution	Impending release notification.	Subscription/ Notification
2	Medium	High	Prosecution	Local Jail/Detention	Affidavit of detention for detention beyond standard timelines.	Push/Pull

Process: Detention

Level 1 Process: Release Subject

Rating	Benefit	Complexit	From	To	Content	Method
9	High	Low	Prosecution, Probation and Parole	Local Jail/Detention	Victim/witness information.	Publish/Query
3	High	High	Court	Local Jail/Detention, Probation and Parole	Release order, conditional release order.	Push/Pull
3	High	High	Local Jail/Detention	Advocates	Release notification.	Subscription/ Notification
2	Medium	High	Prosecution	Local Jail/Detention	No charge decision.	Push/Pull

Process: Detention

Level 1 Process: Report Detention Information to State

Rating	Benefit	Complexit	From	To	Content	Method
3	High	High	Local Jail/Detention	DOCR Prisons	Detention activity (intakes, releases).	Push/Pull
2	Medium	High	Local Jail/Detention	BCI	Provide missing information and make corrections.	Push/Pull
2	Medium	High	Local Jail/Detention	DOCR Prisons	Modify name, DOB, ORI data that was entered incorrectly.	Push/Pull

APPENDIX I
FUTURE FILING PROCESS INFORMATION EXCHANGES

Process: Filing

Level 1 Process: Law Enforcement Charging Decision

Rating	Benefit	Complexit	From	To	Content	Method
6	High	Medium	Law Enforcement	Prosecution	Request for prosecution charging on misdemeanors and felonies.	Push/Pull
3	High	High	Law Enforcement	Probation and Parole	Diversion referral.	Push/Pull
3	High	High	Law Enforcement	Prosecution	Criminal incident/arrest reports, misdemeanor citations.	Push/Pull
3	High	High	Law Enforcement, Fish and Game	Court	Infraction citations.	Push/Pull

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Process: Filing

Level 1 Process: Referral to Prosecution

Rating	Benefit	Complexit	From	To	Content	Method
9	High	Low	BCI	Prosecution	Register sex offenders, criminal history.	Publish/Query
9	High	Low	Court	Prosecution	Dispositions/convictions on prior offenses, court data on other pending cases.	Publish/Query
9	High	Low	Probation and Parole	Prosecution	Probation and Parole record information on offender.	Publish/Query
6	High	Medium	DHS	Prosecution	Information on custodial parents, public assistance status.	Publish/Query
6	High	Medium	DOT	Prosecution	Driver history/priors.	Push/Pull
6	High	Medium	Law Enforcement	Prosecution	Property/evidence seized, intoxication reports, implied consents, search consents, police/incident report, supplemental report, other case information.	Publish/Query
6	High	Medium	Probation and Parole	Prosecution	Referrals on failed diversions, probation and parole violations.	Push/Pull
4	Medium	Medium	DOCR Prisons, Local Jail/Detention	Prosecution	Get offender location for in-custodies, information on time served.	Publish/Query
3	High	High	Law Enforcement	Prosecution	Misdemeanor citations.	Push/Pull
3	High	High	Local Jail/Detention	Prosecution	Booking information.	Push/Pull
3	High	High	Local Jail/Detention	Prosecution, Probation and Parole, Law Enforcement	New detentions in last 24 hours.	Subscription/ Notification

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Process: Filing

Level 1 Process: Prosecution Charging Decision

Rating	Benefit	Complexit	From	To	Content	Method
6	High	Medium	Prosecution	Court	Complaint, juvenile petition.	Push/Pull
6	High	Medium	Prosecution	Probation and Parole	Diversion referral.	Push/Pull
4	Medium	Medium	Prosecution	Court	Warrant request.	Push/Pull
3	High	High	Prosecution	Law Enforcement, Probation and Parole, Local Jail/Detention	Decline to charge notice, complaint, juvenile petition.	Push/Pull
0	N/A	N/A	Prosecution	Grand Jury	Referral for indictment.	Other

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Process: Filing

Level 1 Process: File Arrest Disposition Report

Rating	Benefit	Complexit	From	To	Content	Method
6	High	Medium	Prosecution	BCI	Arrest Disposition form (if decline to charge or diverted).	Push/Pull
6	High	Medium	Prosecution	Court	Arrest Disposition form charging information (if charged).	Push/Pull

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APPENDIX J
FUTURE ADJUDICATION PROCESS INFORMATION EXCHANGES

FUTURE ADJUDICATION PROCESS INFORMATION EXCHANGES

Process: Adjudication

Level 1 Process: Open a Court Case

Rating	Benefit	Complexit	From	To	Content	Method
6	High	Medium	Court	Prosecution	Case status changes (occurs at all steps in the court process).	Push/Pull
6	High	Medium	DOT	Court	Driver/vehicle history (vehicle code citations only).	Push/Pull
6	High	Medium	Law Enforcement	Court	Clarification on citation errors or omissions.	Publish/Query
6	High	Medium	Prosecution	Court	Criminal complaint, delinquency petition.	Push/Pull
3	High	High	Law Enforcement	Court	Infraction citations.	Push/Pull
2	Medium	High	Law Enforcement	Court	Corrections on citation errors and/or omissions.	Push/Pull
0	N/A	N/A	Grand Jury	Court, Prosecution	Grand Jury indictment.	Other

FUTURE ADJUDICATION PROCESS INFORMATION EXCHANGES

Process: Adjudication

Level 1 Process: Pretrial Evaluation

Rating	Benefit	Complexit	From	To	Content	Method
9	High	Low	Prosecution	Probation and Parole	Complaint, prosecution case information.	Publish/Query
6	High	Medium	Local Jail/Detention	Probation and Parole	Booking Information.	Publish/Query
4	Medium	Medium	Probation and Parole	Prosecution, Court	Pre-trial evaluation report.	Push/Pull

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FUTURE ADJUDICATION PROCESS INFORMATION EXCHANGES

Process: Adjudication

Level 1 Process: First Appearance

Rating	Benefit	Complexit	From	To	Content	Method
4	Medium	Medium	Probation and Parole	Court	Request for conditional release order.	Push/Pull
4	Medium	Medium	Prosecution	Probation and Parole, Court	Petitions to admit guilty, no contest pleas.	Push/Pull
3	High	High	Court	Local Jail/Detention	Bail order and requirements.	Push/Pull
3	High	High	Court	Local Jail/Detention, Probation and Parole	Release order/certificate of release, conditions of release.	Push/Pull
2	Medium	High	Court	Local Jail/Detention	Bail payment notice (if paid in court).	Subscription/ Notification
2	Medium	High	Court	Local Jail/Detention, Probation and Parole	Conditional release order.	Push/Pull
2	Low	Medium	Court	Prosecution, Public Defender	Public defense order.	Push/Pull
1	Low	High	Court	Prosecution, Public Defender	Denial order for public defender.	Subscription/ Notification

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FUTURE ADJUDICATION PROCESS INFORMATION EXCHANGES

Process: Adjudication

Level 1 Process: Adult Certification Hearing

Rating	Benefit	Complexit	From	To	Content	Method
6	High	Medium	Law Enforcement	Prosecution	Incident/arrest report.	Publish/Query
6	High	Medium	Prosecution	Court	Adult certification motion.	Push/Pull
4	Medium	Medium	Probation and Parole	Court, Prosecution	Certification study, probation violation report.	Push/Pull
4	Medium	Medium	Probation and Parole	Prosecution	Request to certify juveniles as adult for probation/parole violation.	Push/Pull
2	Medium	High	Court	Probation and Parole, Prosecution	Adult certification order.	Push/Pull

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FUTURE ADJUDICATION PROCESS INFORMATION EXCHANGES

Process: Adjudication

Level 1 Process: Notify Participating Agencies of Case Scheduling

Rating	Benefit	Complexit	From	To	Content	Method
9	High	Low	Court	Prosecution, Probation and Parole, Law Enforcement, Local Jail/Detention, DOCR Prisons, Public	Court calendar.	Publish/Query
6	Medium	Low	Supreme Court, Appellate Court	Court	Court calendar.	Publish/Query
3	High	High	Court	Local Jail/Detention, DOCR Prisons	Order to produce subject.	Push/Pull
3	High	High	Court, Prosecution	Law Enforcement, Probation and Parole	Subpoenas, court calendar (if subscribing to a person/case).	Subscription/ Notification
2	Medium	High	Court	Prosecution, Law Enforcement Agency	Notice to appear for citations that go to trial.	Subscription/ Notification

FUTURE ADJUDICATION PROCESS INFORMATION EXCHANGES

Process: Adjudication

Level 1 Process: Arraignment and Hearings Before Trial

Rating	Benefit	Complexit	From	To	Content	Method
4	Medium	Medium	Probation and Parole	Court	Pre-plea investigation reports.	Push/Pull
4	Medium	Medium	Prosecution	Court	Plea agreement.	Push/Pull
4	Medium	Medium	Prosecution	Court	Motions.	Push/Pull
3	High	High	Court	Law Enforcement, BCI	Protection/restraining order.	Push/Pull
3	High	High	Court	Law Enforcement, BCI, Prosecution, Probation and Parole	Continuances on restraining/protection order.	Push/Pull
3	High	High	Court	Local Jail/Detention, Probation and Parole, Prosecution	Pre-trial court orders.	Push/Pull
2	Medium	High	Law Enforcement	Court	Notice of served protection/restraining order.	Push/Pull

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FUTURE ADJUDICATION PROCESS INFORMATION EXCHANGES

Process: Adjudication

Level 1 Process: Trial

Rating	Benefit	Complexit	From	To	Content	Method
4	Medium	Medium	Prosecution	Court	Plea agreements.	Push/Pull
4	Medium	Medium	Prosecution	Court	Motions, briefs.	Push/Pull
3	High	High	Court	Probation and Parole, Prosecution, Law Enforcement	Court orders.	Push/Pull
2	Medium	High	Court	Law Enforcement, Probation and Parole	Offender failure to appear notice.	Subscription/ Notification
2	Medium	High	Law Enforcement	Court, Prosecution	Certificate of service on summons.	Subscription/ Notification
2	Low	Medium	Prosecution	Court	Witness lists.	Push/Pull
2	Medium	High	Prosecution, Court	Law Enforcement, Probation and Parole, DOCR Prisons	Subpoenas.	Subscription/ Notification

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FUTURE ADJUDICATION PROCESS INFORMATION EXCHANGES

Process: Adjudication

Level 1 Process: Presentence Investigation

Rating	Benefit	Complexit	From	To	Content	Method
9	High	Low	BCI	Probation and Parole	Criminal history.	Publish/Query
9	High	Low	Prosecution	Probation and Parole	Review of prosecution case and victim information.	Publish/Query
6	High	Medium	DOCR Prisons, Local Jail/Detention	Probation and Parole	Institutional and detention status, time served.	Publish/Query
6	High	Medium	Probation and Parole	Court	PSI report.	Push/Pull
3	High	High	Court	Probation and Parole	PSI order.	Subscription/ Notification

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FUTURE ADJUDICATION PROCESS INFORMATION EXCHANGES

Process: Adjudication

Level 1 Process: Sentencing/Disposition

Rating	Benefit	Complexit	From	To	Content	Method
3	High	High	Court	Probation and Parole, Prosecution, Law Enforcement, DOCR Prisons, Local Jail/Detention	Disposition and sentence.	Push/Pull
3	Low	Low	Courts of Appeals, Supreme Court	Prosecution, Public Defender, Court	Appeal results.	Publish/Query
2	Medium	High	Prosecution	Court	Plea agreement.	Push/Pull
2	Low	Medium	Prosecution, Public Defender	Courts of Appeals, Supreme Court, Court	Appeal.	Push/Pull

FUTURE ADJUDICATION PROCESS INFORMATION EXCHANGES

Process: Adjudication

Level 1 Process: Dispose of Charges

Rating	Benefit	Complexit	From	To	Content	Method
6	High	Medium	Court	BCI	Arrest Disposition Report.	Push/Pull
6	High	Medium	Court	DOT	Disposition and sentence conditions on vehicle code violations.	Push/Pull
6	High	Medium	Court	Probation and Parole	Court orders on probation/parole revocations and/or modifications.	Push/Pull
3	High	High	Court	BCI, Law Enforcement	No contact order or modification/dismissal of no contact order.	Push/Pull
3	High	High	Court	DOCR Prisons, Local Jail/Detention	Disposition/sentence if sentenced to local jail or prison incarceration.	Push/Pull
3	High	High	Court	Law Enforcement	Disposition/sentence.	Push/Pull
2	Medium	High	Court	Other County Local Jail/Detention	Sentencing orders for out-of-county residents.	Publish/Query

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APPENDIX K
FUTURE DISPOSITION PROCESS INFORMATION EXCHANGES

FUTURE DISPOSITION PROCESS INFORMATION EXCHANGES

Process: Disposition

Level 1 Process: Collect Fees, Cost, Fines, and Restitution

Rating	Benefit	Complexit	From	To	Content	Method
4	Medium	Medium	Court	Probation and Parole, Prosecution	Order for restitution.	Push/Pull
2	Low	Medium	Prosecution	Court	Victim claims for restitution, draft order for restitution.	Push/Pull
2	Medium	High	Prosecution	Probation and Parole, Court	Restitution balance due, deductions, status.	Publish/Query

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Process: Disposition

Level 1 Process: Probation/Supervised Release Programs

Rating	Benefit	Complexit	From	To	Content	Method
9	High	Low	BCI	Probation and Parole	Sex offender registry information.	Publish/Query
9	High	Low	Prosecution	Probation and Parole	Additional information on victims (e.g., address, set restitution), case information.	Publish/Query
6	High	Medium	Court	Probation and Parole	Probation order.	Push/Pull
6	High	Medium	DOCR Prisons	Probation and Parole	Offender information on parolee.	Push/Pull
6	High	Medium	Law Enforcement	Probation and Parole	Information on an active, pending, or prior incident/event.	Publish/Query
6	High	Medium	Probation and Parole	BCI	Sex offender registration, change of address information.	Push/Pull
4	Medium	Medium	DHS	Probation and Parole	Case file/plan information (on dual cases).	Publish/Query

FUTURE DISPOSITION PROCESS INFORMATION EXCHANGES

Process: Disposition

Level 1 Process: Interstate Transfer

Rating	Benefit	Complexit	From	To	Content	Method
2	Low	Medium	Probation and Parole	DOCR Prisons	Interstate compact report.	Push/Pull
1	Low	High	DOCR Prisons	Probation and Parole	Request to prepare a transfer analysis.	Subscription/ Notification

Process: Disposition

Level 1 Process: Administer Terms of Probation, Supervised Release, Restitution

Rating	Benefit	Complexit	From	To	Content	Method
9	High	Low	BCI	Probation and Parole	Warrant verification.	Publish/Query
9	High	Low	BCI	Probation and Parole	Criminal history checks on supervised offender.	Publish/Query
9	High	Low	DOT	Probation and Parole	Check drivers license status for suspensions, revocations, reinstatements, and prior similar violations (e.g., DUI).	Publish/Query
9	High	Low	Prosecution	Probation and Parole	Victim/restitution information.	Publish/Query
6	High	Medium	Law Enforcement	Probation and Parole	Incident/arrest report, case information.	Publish/Query
6	High	Medium	Local Jail/Detention, DOCR Prisons	Probation and Parole	Time served, offender data (e.g., address).	Publish/Query
6	High	Medium	Other County Local Jails/Detention	Probation and Parole	Check on status of offenders currently or previously in jail in other counties.	Publish/Query
4	Medium	Medium	Court	Probation and Parole	New charges filed.	Push/Pull
4	Medium	Medium	Probation and Parole	Court, Prosecution	Request to modify court orders and/or conditions.	Push/Pull
3	High	High	Court	Probation and Parole	Protection/restraining/no contact order violations.	Subscription/ Notification
3	High	High	Law Enforcement	Probation and Parole	Notification of additional criminal activity on a supervised offender.	Subscription/ Notification
3	High	High	Law Enforcement	Probation and Parole	Police contact reports and citations.	Subscription/ Notification
3	High	High	Probation and Parole	Law Enforcement	Correctional wants issued by probation and parole officer for pick up and holds.	Subscription/ Notification
3	High	High	Probation and Parole	Law Enforcement	Wants issued by parole officers for probation or parole violations.	Subscription/ Notification
1	Low	High	Crime Lab	Probation and Parole	UA results.	Push/Pull
1	Low	High	Probation and Parole	Crime Lab	UA test requests.	Push/Pull
1	Low	High	Probation and Parole	Crime Lab	UA requests.	Push/Pull

FUTURE DISPOSITION PROCESS INFORMATION EXCHANGES

Process: Disposition

Level 1 Process: Incarceration

Rating	Benefit	Complexit	From	To	Content	Method
9	High	Low	Probation and Parole	DOCR Prisons, Local Jail/Detention	Information on offender committed to incarceration, PSI report.	Publish/Query
4	Medium	Medium	DHS	DOCR Prisons, Local Jail/Detention	Offender address and employer data.	Publish/Query
4	Medium	Medium	DOCR Prisons	Local Jail/Detention	Check to see if offender in custody prior to requesting a warrant.	Publish/Query
4	Medium	Medium	Law Enforcement	DOCR Prisons, Local Jail/Detention	Police report/case information.	Publish/Query
3	High	High	Court	DOCR Prisons, Local Jail/Detention	Commitment order.	Push/Pull
3	High	High	DOCR Prisons, Local Jail/Detention	Court, Law Enforcement, Prosecution	No shows for commitment, escape information.	Subscription/ Notification
2	Low	Medium	Local Jail/Detention	DOCR Prisons	Check to see if offender in custody prior to requesting a warrant.	Publish/Query
2	Medium	High	Local Jail/Detention	DOCR Prisons	Offender information, time served (transfer from local jail to state prison after disposition).	Push/Pull
1	Low	High	DOCR Prisons	Local Jail/Detention	Offender information, time served (transfer from state prison to local jail facility).	Push/Pull
1	Low	High	DOCR Prisons, Local Jail/Detention	Probation and Parole	Transfer investigation requests.	Subscription/ Notification
1	Low	High	Probation and Parole	DOCR Prisons, Local Jail/Detention	Transfer investigation report.	Push/Pull

FUTURE DISPOSITION PROCESS INFORMATION EXCHANGES

Process: Disposition

Level 1 Process: Administer Terms of Incarceration

Rating	Benefit	Complexit	From	To	Content	Method
9	High	Low	DOCR Prisons	Victims	Offender release date.	Publish/Query
9	High	Low	DOCR Prisons, Local Jail/Detention	Advocates	Responses to victim requests for information on housed offender, custody status changes.	Publish/Query
6	Medium	Low	Court	DOCR Prisons	Clarification of court orders.	Publish/Query
6	High	Medium	DOCR Prisons	Court	Warrant request on escape/no-show.	Push/Pull
6	Medium	Low	DOCR Prisons	Local Jail/Detention	Time served.	Publish/Query
6	High	Medium	DOCR Prisons, Local Jail/Detention	Probation and Parole	Information on offender transferred to parole.	Publish/Query
6	High	Medium	Local Jail/Detention	DOCR Prisons	Time served.	Publish/Query

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FUTURE DISPOSITION PROCESS INFORMATION EXCHANGES

Process: Disposition

Level 1 Process: Disposition Review/Revocation or Complete

Rating	Benefit	Complexit	From	To	Content	Method
6	High	Medium	Court	BCI	Modified dispositions and sentences (revised Arrest Disposition Report).	Push/Pull
6	High	Medium	Court	Probation and Parole, Prosecution	Revocation of court-ordered diversion.	Push/Pull
6	High	Medium	Court	Prosecution, Probation and Parole	Revocation, modification, discharge of conditions orders.	Push/Pull
6	High	Medium	Probation and Parole	BCI	Treatment program failures on offenders in BCI repositories (e.g., sex offenders).	Push/Pull
6	High	Medium	Probation and Parole	Court, Prosecution	Parole violation report and/or request for arrest warrant and/or request to modify terms of probation/parole.	Push/Pull
6	High	Medium	Probation and Parole	Court, Prosecution	Request for revocation of court-ordered diversion.	Push/Pull
6	High	Medium	Prosecution	Probation and Parole	Approval or disapproval of recommended revocation (violations).	Push/Pull
4	Medium	Medium	DOCR Prisons	Court	Request for warrant, arrest and detention orders.	Push/Pull
4	Medium	Medium	Probation and Parole	Court	Request for release, discharge order.	Push/Pull
3	High	High	Advocates	DOCR Prisons, Local Jail/Detention	Request for notification of release.	Subscription/ Notification
3	High	High	Advocates	Probation and Parole	Request for notification of revocation hearings and end of probation or parole.	Subscription/ Notification
3	High	High	Court	Probation and Parole, Law Enforcement	Arrest warrant.	Push/Pull
3	High	High	DOCR Prisons, Local Jail/Detention	Advocates	Notification of release.	Subscription/ Notification
3	High	High	DOCR Prisons, Local Jail/Detention	Court, Law Enforcement	Satisfaction of sentence and release notice.	Subscription/ Notification
3	High	High	Probation and Parole	Advocates	Notification of parole/probation completion, violation, or revocation.	Subscription/ Notification

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FUTURE DISPOSITION PROCESS INFORMATION EXCHANGES

Process: Disposition

Level 1 Process: Disposition Review/Revocation or Complete

Rating	Benefit	Complexit	From	To	Content	Method
2	Medium	High	Probation and Parole, DOCR Prisons, Local Jail/Detention	Court, Law Enforcement, Prosecution	Sentence conditions or commitment requirements satisfied notification.	Subscription/ Notification

APPENDIX L
FUTURE OTHER PROGRAMS EXCHANGES

Process: Other Programs
Level 1 Process: Precharging Diversion

Rating	Benefit	Complexit	From	To	Content	Method
6	High	Medium	Prosecution, Law Enforcement	Probation and Parole	Diversion referral.	Push/Pull
4	Medium	Medium	Probation and Parole	Prosecution	Diversion agreement.	Push/Pull
3	High	High	Probation and Parole	Prosecution, Law Enforcement	Offender failure to enroll or attend.	Subscription/ Notification
3	High	High	Probation and Parole	Prosecution, Law Enforcement	Diversion report (status or completion).	Push/Pull
3	High	High	Probation and Parole	Prosecution, Law Enforcement	Diversion failures, revocation request.	Push/Pull

MTG

FUTURE OTHER PROGRAMS EXCHANGES

Process: Other Programs
Level 1 Process: Postcharging Diversion

Rating	Benefit	Complexit	From	To	Content	Method
6	High	Medium	Court	Prosecution, Probation and Parole	Diversion order.	Push/Pull
6	High	Medium	Probation and Parole	Prosecution, Court	Diversion agreement.	Push/Pull
6	High	Medium	Probation and Parole	Prosecution, Court	Diversion failures, revocation request.	Push/Pull
6	High	Medium	Probation and Parole	Prosecution, Court	Diversion report (status or completion).	Push/Pull
6	High	Medium	Prosecution	Probation and Parole, Court	Diversion referral/recommendation.	Push/Pull
3	High	High	Probation and Parole	Prosecution, Court	Offender failure to enroll or attend.	Subscription/ Notification

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FUTURE OTHER PROGRAMS EXCHANGES

Process: Other Programs

Level 1 Process: Administer Diversion

Rating	Benefit	Complexit	From	To	Content	Method
9	High	Low	Probation and Parole	Diversion Program Providers	Program requirements, certified providers.	Publish/Query
6	High	Medium	Diversion Program Providers	Probation and Parole	Program enrollments, openings/capacity, offender status in program.	Publish/Query
3	High	High	Diversion Program Providers	Probation and Parole	Program summary status/performance reports, including financials.	Push/Pull
3	High	High	Diversion Program Providers	Probation and Parole	Offender diversion failure.	Push/Pull
3	High	High	Diversion Program Providers	Probation and Parole	Offender failure to enroll or attend.	Subscription/ Notification
3	High	High	Diversion Program Providers	Probation and Parole	Diversion report (status or completion).	Push/Pull
3	High	High	Probation and Parole	Diversion Program Providers	Diversion referrals.	Push/Pull
2	Medium	High	Diversion Program Providers	Probation and Parole	Billings.	Push/Pull
2	Medium	High	Diversion Program Providers	Probation and Parole	Diversion agreement.	Push/Pull

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FUTURE OTHER PROGRAMS EXCHANGES

Process: Other Programs
Level 1 Process: Training Programs

Rating	Benefit	Complexit	From	To	Content	Method
9	High	Low	Law Enforcement Training	Law Enforcement	Course synopsis, dates offered, synopsis, prerequisites, class openings.	Publish/Query

Process: Other Programs

Level 1 Process: Administer Training Programs

Rating	Benefit	Complexit	From	To	Content	Method
3	High	High	Law Enforcement	Law Enforcement Training	Requests for training.	Push/Pull
3	High	High	Law Enforcement Training	Law Enforcement	Completion and certification information.	Push/Pull
3	High	High	Law Enforcement Training	Law Enforcement	Enrollment notification.	Subscription/ Notification

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APPENDIX M
APPLICATION ARCHITECTURE PACKET

APPLICATION ARCHITECTURE PACKET

CJIS operations and management are, and will be, supported by an array of computerized applications. These applications are key strategic assets to the CJIS project and must be managed to maintain their value and to minimize their cost of ownership. The technology architecture that supports North Dakota's future CJIS vision will be based upon a set of functional systems which support primary CJIS business activities. The Implementation Plan in the next planning deliverable identifies which of the current systems will be replaced, and which are currently planned to evolve, to provide the future functional environment. EXHIBIT M-1, which follows this page, lists the current applications environment on the bottom half of the illustration. It also lists the future functional applications on the top of the diagram that should be added to the CJIS environment to meet CJIS requirements. In addition, it shows the Web portal that will support CJIS efforts. The application architecture is discussed in more detail below.

A.   VISION

The application architecture is a core effort in implementing the CJIS technology architecture. It represents both current applications that will be extended and future applications that will enhance the environment. These applications will support operations of the justice agencies and capture the data needed for CJIS information exchanges among justice partners across the state.

B.   PRINCIPLES

To manage these assets effectively, North Dakota will apply the core technology principles discussed in Section IV to:

- The manner in which these applications will be acquired and maintained.

- The major applications that CJIS will employ.

- The relationship between these applications.

Applying the core technology principles within this framework means that North Dakota will create a CJIS environment that exhibits the following design principles:

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APPLICATION FUNCTIONAL AREA DESIGN
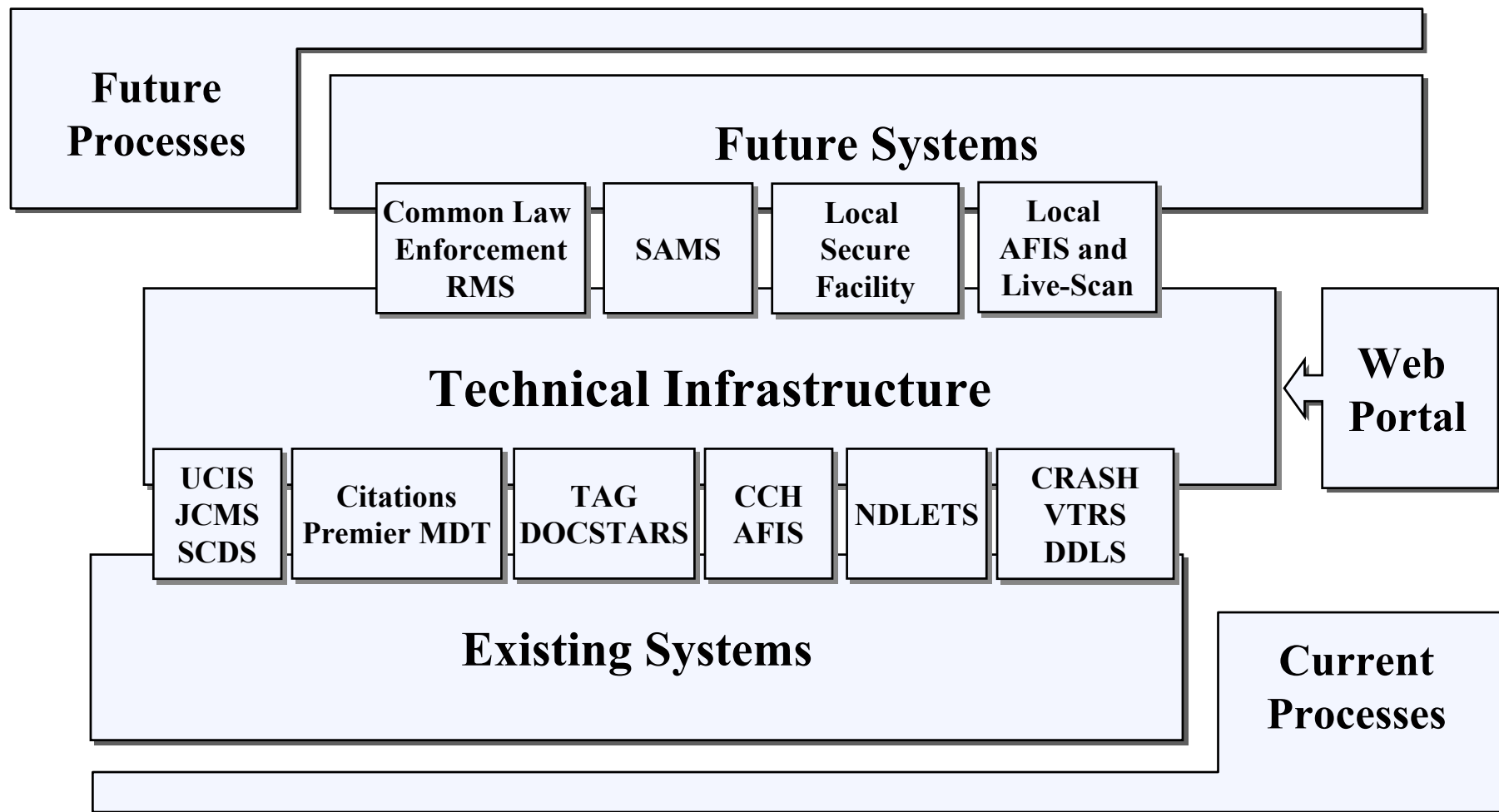
- **Ease of Use**

  Applications will be characterized by technical structures that facilitate ease of use and enhance justice staff efforts to accomplish daily tasks.

- **Support of User Business Functions**

  The focus of the work done by applications will support, improve, and enhance the business functions conducted by justice staff.

- **Minimal Maintenance Requirements**

  Required support efforts for the systems, information access, and interchanges will be minimized to help ensure efficient use of limited technical resources. This is a critical design principle given the size of technology support organizations and current funding trends.

- **Provision of Information to the CJIS Environment**

  The resulting use of the applications will create or modify information within the system that contributes to both the individual business task and information stores, as well as the enterprise data structures and business processes that support the overall justice enterprise.

These principles guide the manner in which CJIS applications will be developed. The design decisions provided in the next subsection reflect that guidance.

C.   DESIGN DECISIONS

The application architecture and goals outlined above are further refined and focused based on a series of design decisions that support the core technology principles and architectural qualities for the future CJIS. The tactical decisions are:

- **Support Evolutionary Change**

  North Dakota will develop an implementation plan that supports the gradual change from the current environment to the future technology architecture. This evolution will be based on completing existing projects, implementing publishing solutions, improving the application offerings and, finally, developing and enhancing a messaging solution. The overall objective of these changes is to increase the amount of accurate information made available to justice staff in a timely manner, both within CJIS organizations and the justice partners.

- **Adopt Internet Architecture**

    North Dakota will adopt an Internet-based architecture for all internal and external CJIS applications. Application configuration decisions should be based on N-tiered technology. Separating application graphical user interface, logic, data, and their associated processing and maintenance systems will improve application integration management, both locally and remotely.

- **Use Standardized Development Tools**

    The state will adopt an industry-standard set of application development tools and databases and expand or refine the current standards to embrace state justice integration standards as well as needed new standards to support the CJIS technical environment. Vendor-neutral standards should be applied whenever possible to allow for reduced system integration and maintenance efforts. By decreasing the variability and complexity of application-related tool sets, the state can take full advantage of standardized application and technology offerings without have to acquire unique, specialized skills for individual components. Utilizing standardized tools will also provide the greatest opportunity for the sharing of justice data between other state and federal organizations.

- **Replace Appropriate Legacy Technology and Applications**

    Selected existing applications will be replaced with commercial products that support industry interoperability standards. Replacement plans are not intended to force retirement or deconstruction of existing systems. However, long-term plans and TCO must be considered when implementing new systems in order to avoid obsolescence. The intent of this decision is to expand the business functionality of CJIS application offerings and to promote application integration, flexibility, and interoperability. CJIS plans need to consider strategies for the removal of nonstrategic or retired technologies. Strategies are essential in CJIS plans for providing pathways to move from obsolete or nonstandard technologies; long-term technology migration plans will be necessary to resolve technology obsolescence within the CJIS environment. Procurement of retired technologies should not be considered; however, procurement for the following systems should be considered:

    » *Common Law Enforcement Application.* The local agencies need a functional, but straightforward application that will capture and manage case information electronically.

    » *State's Attorney Case Management System.* The State's Attorneys need to have a case management system that will support local operations and exchange critical case information with the CJIS systems.

» *Common Local Detention Management Application.* Jails across the state have a need to record basic information about the individuals in their care. In addition, a significant need within the CJIS community is a means to know which individuals are in custody across the state.

These systems represent critical CJIS information collection and management applications that are not currently utilized in the CJIS environment.

■ <u>Buy, Not Build</u>

North Dakota's preference is to buy, not build, application and platform architectures wherever possible. It will purchase applications that are tested and generally accepted by the IT industry. CJIS efforts should avoid "bleeding edge" technologies for the CJIS solutions where support risk cannot be justified. COTS products must be compliance-certified and - tested. Production systems should not rely on alpha and beta releases of systems. Existing facilities will be leveraged to achieve application goals where possible. Ensuring the highest quality of service to the end users needs to be the basis for all technology decisions. Trade-offs between the best performance and the TCO need to be balanced and factored into long-term platform decisions.

The decisions highlighted above provide overall design guidance to the application layer of the integration model included as EXHIBIT M-2, which follows this page. Specific design packets for the application architecture packet are:

■ *Application Design Packet (APPENDIX M-1).* This packet outlines tactical application design principles and decisions.

■ *Web Site Design Packet (APPENDIX M-2).* The Web Site Design Packet presents the tactical principles and decisions that guide CJIS Web site design.

The design packets support the application architecture by highlighting specific points that meet the requirements identified in the CJIS Requirements Document.

D. <u>DISCUSSION NOTES</u>

The following discussion notes should be considered in support of the information presented in the previous subsections.

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STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT

INTEGRATION MODEL

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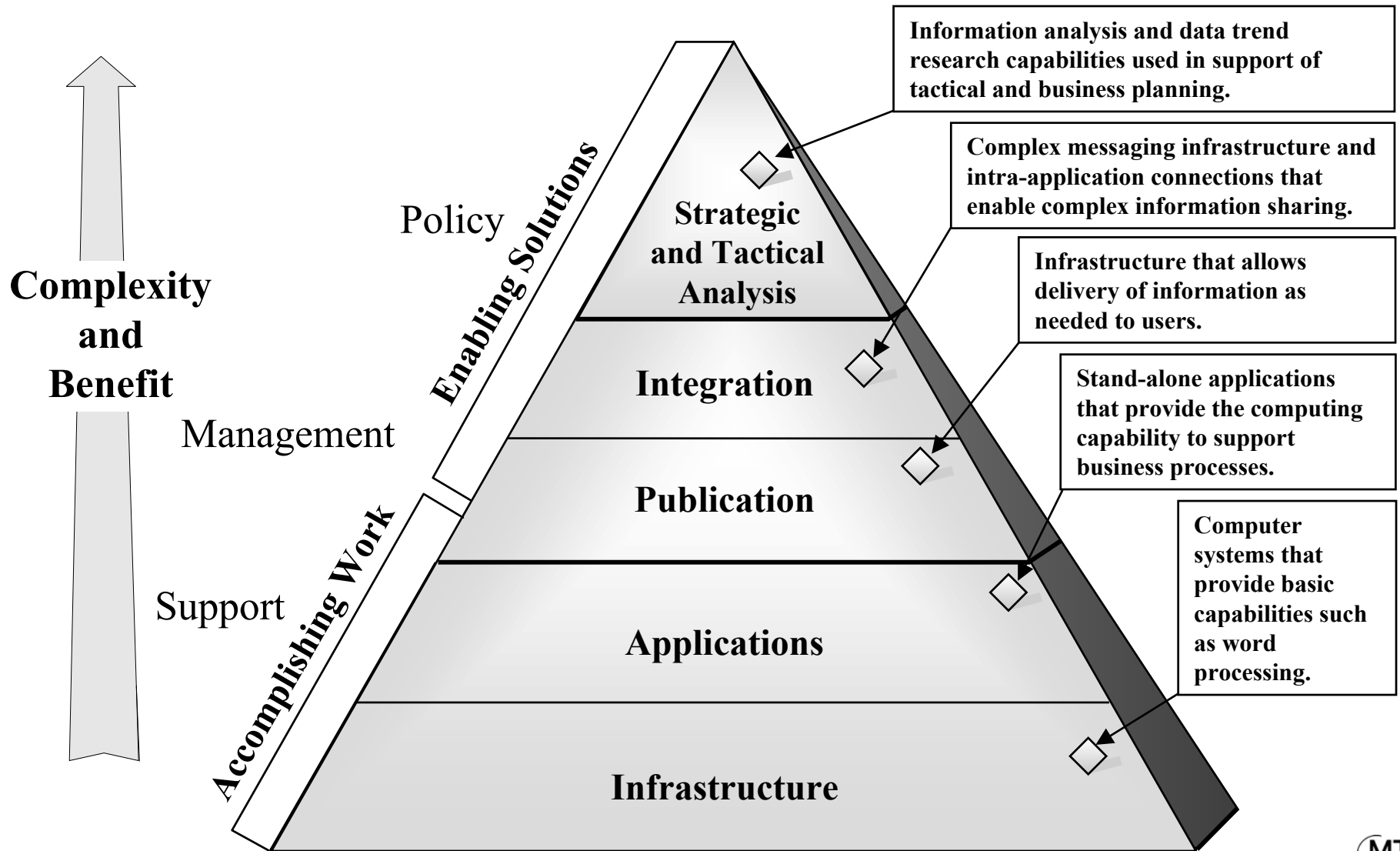
■   <u>Local Application Systems</u>

This design packet identifies three significant applications that the state of North Dakota should prioritize as CJIS projects. The CJIS vision depends on these systems:

»   Common Law Enforcement Application.

»   State's Attorney Case Management System.

»   Common Local Detention Management Application.

Other application effort focus on specific information exchanges that, although important, do not have the overall CJIS impact that these system can potentially yield. These efforts will likely require additional staff resources from ITD or from contractors.

■   <u>Possible Enhancements to Current Applications</u>

Based on the detailed operational needs of the justice community and the specific information exchanges identified by the CJIS project team in the implementation process, the future functional environment may require the enhancement to the current CJIS systems. The overall strategy for these projects should be to rely on existing support staff, augmented where necessary by contract staff.

■   <u>Web Portal</u>

Although discussed in APPENDIX O, the Integration Architecture, the Web portal represents a single, Web-based access point to the systems and information contained within the CJIS environment. Therefore, all application efforts should consider requirements outlined in the integration architecture packet. Specifically, the Web portal contains a security and authorization layer that tailors the available options to match the user's security profile. This affects the design of all applications in this architecture packet and subsequent supporting design packets.

APPLICATION DESIGN PACKET

This subappendix describes the logical overview of the North Dakota application infrastructure that provides the guiding principles and design concepts used to ensure consistency and common application design throughout the environment. In addition, the principles and standards that are detailed below are important design elements to the Web site, security, and auditing discussions above. The vision for the application environment is described below.

A.   VISION

The vision of the application environment is portrayed in EXHIBIT M-1-1, which follows this page. The application design model highlights the component structure of the application environment. This structure provides the following key elements:

■   Applications will be constructed to maximize the data access model, indexes available in the central repository, independent and modular application indexes, and the auditing capabilities of the environment.

■   All future applications will be Web-based and will be designed to support the best possible user interface for the purpose of that user group.

■   Application components will be the basic construction block for all elements of the environment, including the application services, Web site design, security implementation, and auditing.

The application vision is supported by the principles outlined in the next subsection.

B.   PRINCIPLES

The vision described above is achieved through the use of the principles detailed below. Application development standards within the CJIS environment and ITD will be enhanced with the following standards to enable the other design elements overall environment. CJIS application principles and standards must include the standards outlined below.

■   The application environment will be based on secured, intranet applications.

■   Applications will be modular in design so that specific functions can be activated in discrete layers. Specific examples of the modular design are listed on EXHIBIT M-1-1. These

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APPLICATION DESIGN MODEL

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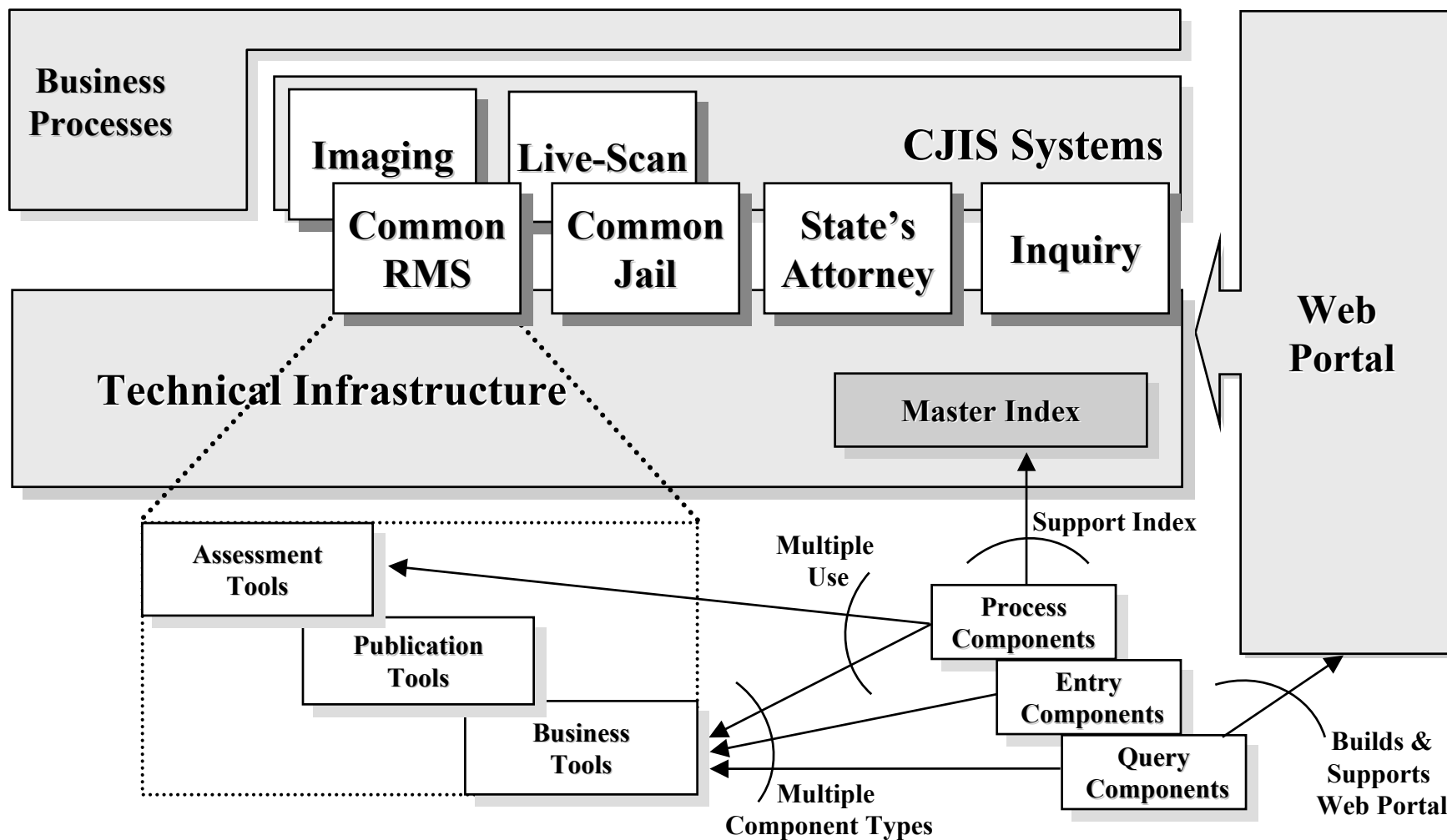
components can be grouped logically into process components, entry components, and query components.

- Application modules will support specific identified business functions.

- Application modules will have an identical look and feel based upon defined Web development standards. APPENDIX M-2, Web Site Design Packet, outlines the design.

- Application modules will be focused in logical groups to provide consistent elements for the CJIS environment.

- Application modules should be reused in any application that requires the specific business function supported by that module. Examples of multiple use is diagrammed on EXHIBIT M-1-1.

- The modules should support specific business activities, such as data entry, query, or information processing.

- The module will not support more than one type of business activity, so that related environmental functions, such as security and audit, do not have to control specific actions of a module.

- CJIS's Web development standards will guide all application designs.

- Deviations from the Web design standards will be expressly authorized by the CJIS governing body.

- Where CJIS standards are not followed, such as a vendor-provided industry standard solution, the vendor will augment the application help package with a cross-reference to CJIS standards.

The principles guide the design decisions listed in the next subsection.

C.   DESIGN DECISIONS

The design decisions direct the application design and overall environment. These decisions will be used to structure the physical implementation characteristics of the application environment. All construction and implementation choices will support the component structure outlined by these guidelines:

- An application solution will consist of a group of defined Web-based modules that meet the business requirements for the application.

■   The application solution will provide a common means of high volume data entry and a common, easy-to-understand interface for less frequent users.

■   Application modules should limit their designed support to one major business activity.

■   Application module components will limit the functionality offered to a single business function.

The conceptual design creates the critical issues that must be managed. These issues are described in the next subsection.

D.   <u>DISCUSSION NOTES</u>

The following discussion notes apply to this design packet:

■   The application design issues that must be managed are focused primarily on standards. The impact of any deviations will be manifest as more complicated security and maintenance. The specific issues that must be managed are outlined below.

»   CJIS must have clearly defined Web development and functionality standards.

»   The appropriate level division for specific functionality must be consistent across the environment.

»   The ability to assign security and audit elements to a discrete component is critical to those subsystems.

»   Clear graphical user interface standards must be defined and promulgated early in the development cycle to minimize development impact and rework.

■   Vendor-provided solutions may or may not conform to the design principles outlined in this design packet. Vendor selection should maximize the ability to utilize, either by integration or linkages, vendor functionally with CJIS Web access.

The environment depicted in this appendix creates the service infrastructure that will provide long-term flexibility for the CJIS environment and its users.

WEB SITE DESIGN PACKET

This packet provides the Web site design principles that will be used to access all CJIS applications and support systems. The central concept of the Web site is that a user should need minimal clicks to accomplish an action. The vision, principles, and design decisions listed below provide the guidance for the conceptual design of all CJIS Web sites. The vision of "single-click" access is described in the next subsection.

A.   VISION

The vision for the CJIS Web site is summarized by a rapid, secured access method to the primary business functions desired by the user. This access will provide the major function areas grouped by access category. It will provide a list of common and often-used features for that user. It will also have the ability to get to all information as needed. This vision is demonstrated in EXHIBIT M-2-1, which follows this page, depicts a model Web design. Additional components of the vision are listed below.

- The Web site will consist of functional areas covering specific organization (such as BCI or DOCR, CJIS, and non-CJIS user communities.

- Within each functional area, specific application services will exist.

- Application services will exist in only one functional area. Organization users will have access to all three functional areas. CJIS users will have access to the CJIS and non-CJIS areas. Non-CJIS users will have access only to non-CJIS areas.

- The focus of the each page will be a single-click access point for each type of user.

The Web site vision is supported by the principles outlined in the next subsection.

B.   PRINCIPLES

The Web site should provide clear, focused access to application functions and information for an organization's staff and CJIS customers. The central principle is that the Web sites will follow fundamental design principles published by the CJIS project and ITD. In addition, the following principles will be incorporated into the CJIS project's existing design principles.

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WEB DESIGN MODEL

Key Design Elements

**Major Functional
Group Tab**

**Major Functional
Area**

**Major Services
(Organized by
Category)**

**Additional Function
Link**
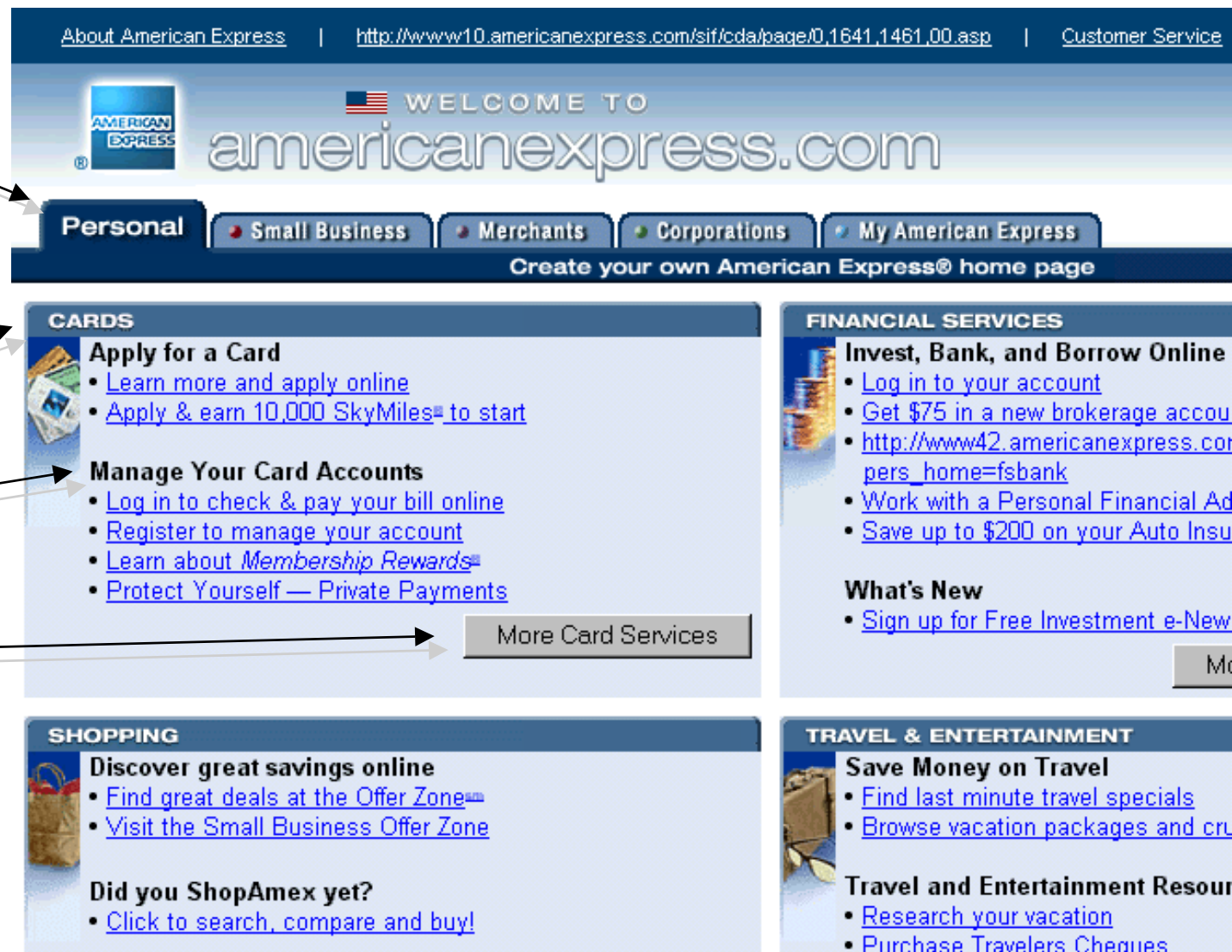
- The Web site will provide content for the entire enterprise, although users will only see authorized access points.

- Functional areas will be tab-based and will provide the service options to all users of that level of services.

- Users will only see the functional areas that they are authorized to access.

- Users will not be able to see a service within a functional area when they are not authorized to access that particular service.

- A common set of standards will be defined for the Web interface.

- Web services will be implemented in a redundant method consistent with ITD and CJIS standards.

- The site layout will support access to primary functional area services in one click.

The critical behavior is that the Web sites will be constructed to provide single-click access. EXHIBIT M-2-1 shows an extract from *http://www.americanexpress.com* and is a good example of the single-click approach. This site organizes applications and functions into functional groups, functional areas, categories, and finally services. This organization approach is critical to provide access within a single click. These principles are supported by the design decisions in the next subsection.

C.   DESIGN DECISIONS

The tactical design decisions guide the construction and implementation of CJIS Web sites. These decisions will be used to structure the physical implementation characteristics of the actual Web pages. All construction and implementation choices will support the single-click vision outlined by the following:

- There will be three primary tabs (functional groups) on the Web page: General Services, CJIS Services, and Organization Services (Agency/Organization tab such as BCI, DOCR, etc.).

- Each tab will offer specific application service areas (functional areas) that will list the primary functions of the application.

- Specific application service areas will group the services provided into logical categories, listing each of the offered services.

- When a service is selected, the Web site will hand off authentication information to the application service.

■   A user will only be able to see the functional areas, categories, and services that they are authorized to access.

The design decisions are key concepts that must be clear to all developers and vendors for a consistent look and feel within CJIS applications. The next section outlines discussion notes related the Web site design.

D.   <u>DISCUSSION NOTES</u>

The following discussion note outlines tactical issues that must be managed:

■   Standardization of the Web pages so that a common look and feel is maintained throughout the environment. The specific issues that must be managed are outlined below.

»   Retrofitting existing Web services to the new common standards will involve an undefined effort.

»   Application of the standards and approach within all of the Web pages within the environment must be prioritized to simplify the environment for users.

»   The dynamic display features of the Web site require a clearly defined user authority database as well as tight integration with the Web services.

In addition to these issues, it is important to note that the single-click approach will yield significant improvement in the usability of CJIS services as well as the satisfaction and support for those services.

APPENDIX N
INFORMATION ARCHITECTURE PACKET

INFORMATION ARCHITECTURE PACKET

Data design is the process of conceptually modeling data in a manner that will maximize data integrity, availability, and shareability while minimizing administration and maintenance. The conceptual data design must ensure that the design supports CJIS business functions. This will take a concerted effort in CJIS plan implementation that strikes a balance between a number of key factors outlined in this appendix. These architectural design issues create a complex matrix of considerations for each system; however, adherence to the principles and design will minimize future implementation issues.

A. VISION

The design should present an overall conceptual vision that shows the major data stores that will be used and the relationships between these data stores. This design will be used to guide CJIS system enhancements, development, and acquisitions. Implementing component data structures for major functional areas as stand-alone data stores will create CJIS organizations' database infrastructure. These components will be linked through related indexes, which are then linked to the overall master index structure. The database model is documented in the Data Standards deliverable for this project. Additional key concepts within the database vision include:

- A key component to this structure is the use of master lookup tables that are shared to each individual data store as needed.

- A mechanism will exist within each application area's data repository to update the central index and repository.

- Design features will be clearly documented and available electronically to provide rapid troubleshooting in the event of problems.

The database vision is supported by the principles outlined in the next subsection.

B. PRINCIPLES

Several key design principles guide the database design. These principles provide the design rationale that will be used to determine design choices during system creation and implementation.

■ CJIS Data Dictionary

The data definitions in each database will be based on the CJIS Data Dictionary. Updates to the dictionary will be made for any new data elements that are necessary based on a new data set or redefinition.

■ Organizational Issues

Some data used by the CJIS is maintained by organizations other than CJIS justice partners. Because of this, some data stores may be segregated.

■ Vendor Offerings

The readily available and most robust vendor applications addressing CJIS requirements have data structures that are relatively similar from vendor to vendor. The conceptual data model should mirror these common structures.

■ Maintenance Effort

The data model should be designed to minimize the database administration, given all other factors. In addition, the data systems will be built in a modular architecture so that databases can be maintained and enhanced independently.

■ Accuracy

The data model should be designed to help ensure accuracy by minimizing redundancy and complexity. In addition, the databases will utilizes lookup table information that is based on standard enterprisewide master lookup tables to reduce information differences.

■ Processing Requirements

Different components of the data structure should support different processes. For example, one part of the data structure will support high-speed, on-line transaction processing while another will address On-Line Analytical Processing (OLAP).

■ Migration

The conceptual data design should address migration issues as the CJIS migrates from the legacy to the next-generation databases and systems.

■   Indexes

System-level indexes will exist and updates to the indexes will be forwarded to update the central index.

■   Common Lookup Tables.

The databases will utilizes lookup table information that is based on standard enterprisewide master lookup tables. Information that is added to the lookup tables will be reviewed at the next CJIS Technology Committee meeting.

These principles are supported by the decisions in the next subsection.

C.   DESIGN DECISIONS

The following information architecture decisions have been established to guide the strategic management of data in terms of a well-structured, meaningful plan for the deployment, use, and protection of business-critical information.

■   Support Diverse Data Types

Justice operations involve the gathering and evaluation of information (e.g., evidence) from a variety of sources, often in a variety of forms: paper, images, audio, video, and electronic data. If CJIS applications are to mirror and effectively support its business practices, these applications must be able to capture, store, organize, retrieve, and present all these different types of data. As a result, the state should invest in the tools that provide these capabilities.

■   Allow Some Data Redundancy, if Required

Traditionally, data redundancy has been avoided to maximize the use of expensive data storage facilities and to minimize data complexity. Today, with the onset of inexpensive storage, some data redundancy issues are not as critical as they once were. While the state will strive to avoid the development of redundant data structures, it will cautiously accept a degree of data redundancy if required to address a business need. An example is the use of a highly valuable COTS application that creates a redundant data store.

■   Follow Existing Data Standards

Many standards have been established to guide the format and storage of CJIS-related justice information. Existing data standards include those determined by the state data model,

NCIC, American Association of Motor Vehicle Administrators (AAMVA), National Institute of Standards and Technology (NIST), and others. Unless there is a compelling reason to depart from the established standards, the CJIS should continue to observe them. In choosing standards, the state should follow a decision tree:

» Is there a federally or nationally mandated standard set forth in the subject area served? One example is the Electronic Fingerprint Transmission Specification established by the FBI for the submission of arrest fingerprints.

» Are there other applicable standards (e.g., NCIC, AAMVA, NIST)?

» Is there a standard defined in the state CJIS Data Standards?

» Is there a leading or emerging standard in the IT industry?

» What standards do the market-leading-solution provider use?

» Is there another regional or local standard?

- **Apply Document Imaging Technology Thoughtfully**

Generally, document imaging will not be embraced as a long-term primary solution for electronic storage of and access to information, except in cases where needed information cannot viably be captured electronically. The real value in form-based information is the data contained therein. Document images alone do not afford the ability to perform specific searches, analysis, or reporting on the elemental information. While a number of current imaging solutions offer capabilities such as intelligent character recognition, care should taken to ensure that the technology will easily and accurately extract the data from forms, and that document imaging solutions do not unduly perpetuate the paper-based capture of information. In such cases, document imaging should largely be considered as a bridging solution (i.e., transferring paper information to an electronic media/object).

- **Invest in XML**

Given the future vision of moving to a browser-based environment, it is important accept the emerging technologies that will drive the environment into the future. XML, the emerging standard for the exchange of data over the Internet, can facilitate the creation and distribution of a wide variety of information objects and or documents. There are a number of mandated standards for data exchange in the justice community (e.g., NCIC and IAFIS are well established). Where no other data exchange standards are mandated, the CJIS will use XML methods and structures to support data exchanges between programs and agencies.

■ Structure Data to Ease Access and Analysis

CJIS current data structures are geared toward efficiency in data retrieval, access, and storage. This method, although highly efficient, is based on the technologies available at the time that UCIS, TAG, and other similar-vintage systems were developed. However, this does not allow for easy data accessibility or data analysis across the enterprise. With the quantum leaps in database technology, the stringent database efficiency requirements can be met with a product that also provides easy and powerful access and analysis tools. A new model will be adopted, based on current technological capabilities, that will allow the CJIS to take the next step into more data accessibility and data analysis.

The decisions highlighted above provide overall design guidance to the information component of the application layer on the integration model included as EXHIBIT N-1, which follows this page. The specific design packet for the information architecture packets is:

■ *Data Access Design Packet (APPENDIX N-1).* The packet outlines tactical data access design principles and decisions.

The design packets support the information architecture by highlighting specific points that meet the needs of requirements identified in the CJIS requirements document.

D. DISCUSSION NOTES

The following discussion notes provide additional information and guidance for the information architecture.

■ The database vision and principles described above provide the central themes that control the high-level design of databases implemented within the CJIS environment. The guidance provided by that design creates a compartmentalized repository structure that is interconnected by common indexes. This structure provides an infrastructure that can be upgraded by individual components. This is critical to the long supportability and maintenance of the CJIS environment.

■ The database issues that must be managed are the ability to sustain the index and database as they are created and implemented. The specific issues that must be managed are outlined below.

» Correct utilization of the shared code tables.

» Established index updates to the central index.

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INTEGRATION MODEL

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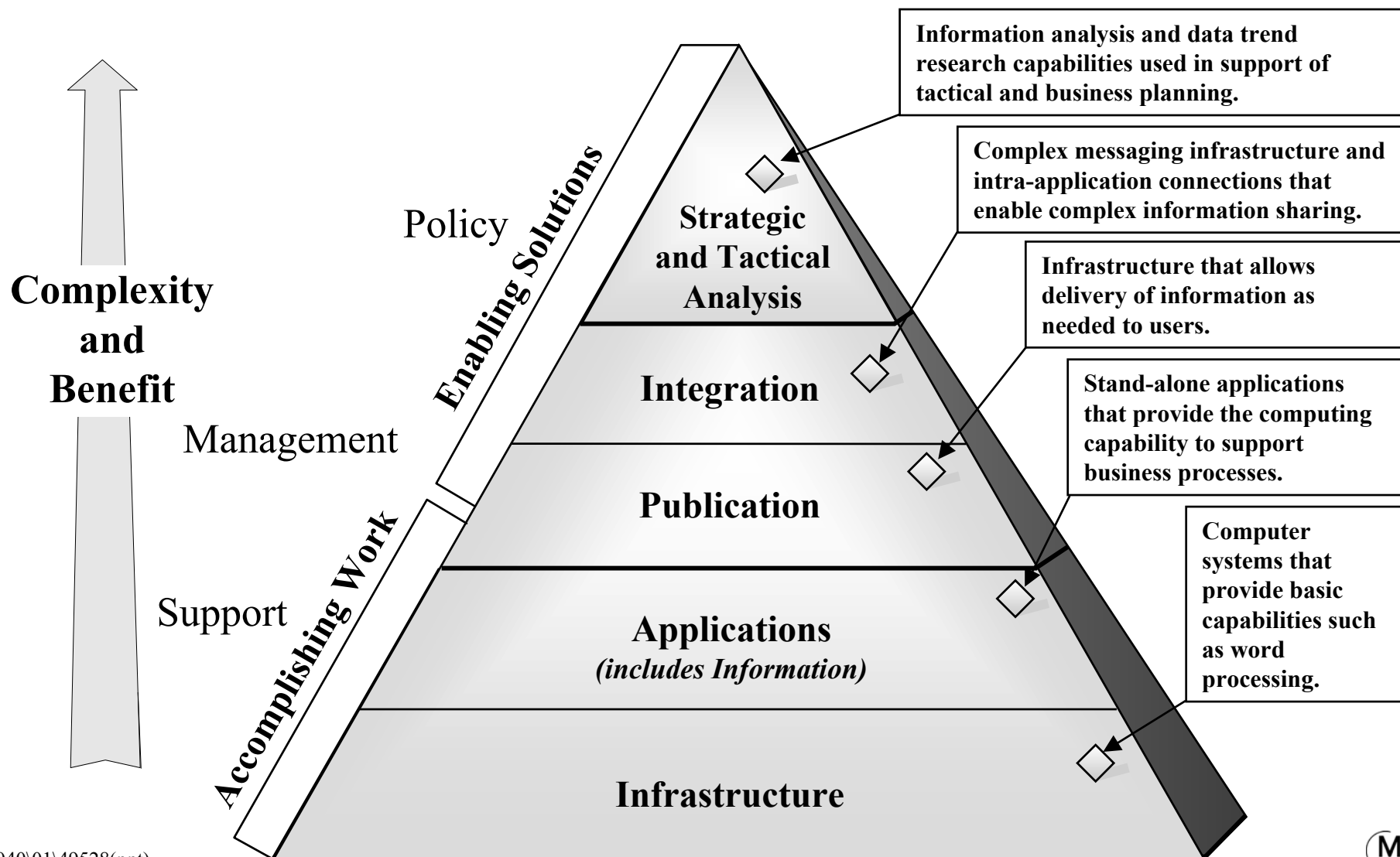
» Independent design practices that support the common database principles and guidelines.

Long-term database maintainability and manageability are dependent on successful management of these issues.

■ The conceptual design guidelines provide the tactical design decisions that guide the database construction and implementation. These guidelines will be used to structure the physical implementation characteristics of the database. All construction and implementation choices will support the centralized index and component data store model outlined by these guidelines:

» Centralized lookup tables that are replicated to individual databases.

» Index updates will trigger updates to the state's central index.

» Physical databases may share common hardware; however, the database will be constructed independently from other databases on the device.

■ The construction of independent data stores does not preclude the centralization of these databases on a single hardware platform. The key to the design is the ability to easily change or move a discrete data store whenever required. In addition, this design includes a centralized lookup table feature that is intended to simplify code table maintenance and consistency. This feature will require some data store implementation, but it will ensure consistent data tables that are essential to the vision.

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DATA ACCESS DESIGN PACKET

This subappendix sketches the concepts and design supporting the access to information and the specific technological infrastructure that supports that access. This packet provides additional design parameters for the database; specifically, it provides the vision and principles for the access methodology to the database. The access methodology outlined below is critical to the long-term vision of the CJIS environment. The data access vision is discussed below.

A.   VISION

The vision for data access relies on two primary means of access: query and direct. Direct access is the most limited method that will be used within the CJIS environment. It allows direct access to the information within the data store. Query access will be the most common means of access. These two methods of access will be implemented at a component level such that an application suite may have four direct access components and 16 query access components. The conceptual model in EXHIBIT N-1-1, which follows this page, depicts these two data access methods. In addition, the following points guide the overall vision.

- Access to systems will be constructed in a modular method so that repository changes and implementation of middleware will not require changes to the data access methods.

- The end result of the access efforts will be a modular and distributed information repository.

The data access vision is supported by the principles outlined in the next subsection.

B.   PRINCIPLES

The data access principles detailed below provide expanded guidelines for the vision described above and depicted in EXHIBIT N-1-1.

- Data access will occur from three primary areas: organizations, CJIS, and the Web. It will occur through three primary means: organization networks, the state radio message switch, and Web interfaces.

- Direct access to the application repository will be limited as much as possible.

- Direct access and query access through the master index and repository will be utilized wherever possible.

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DATA ACCESS
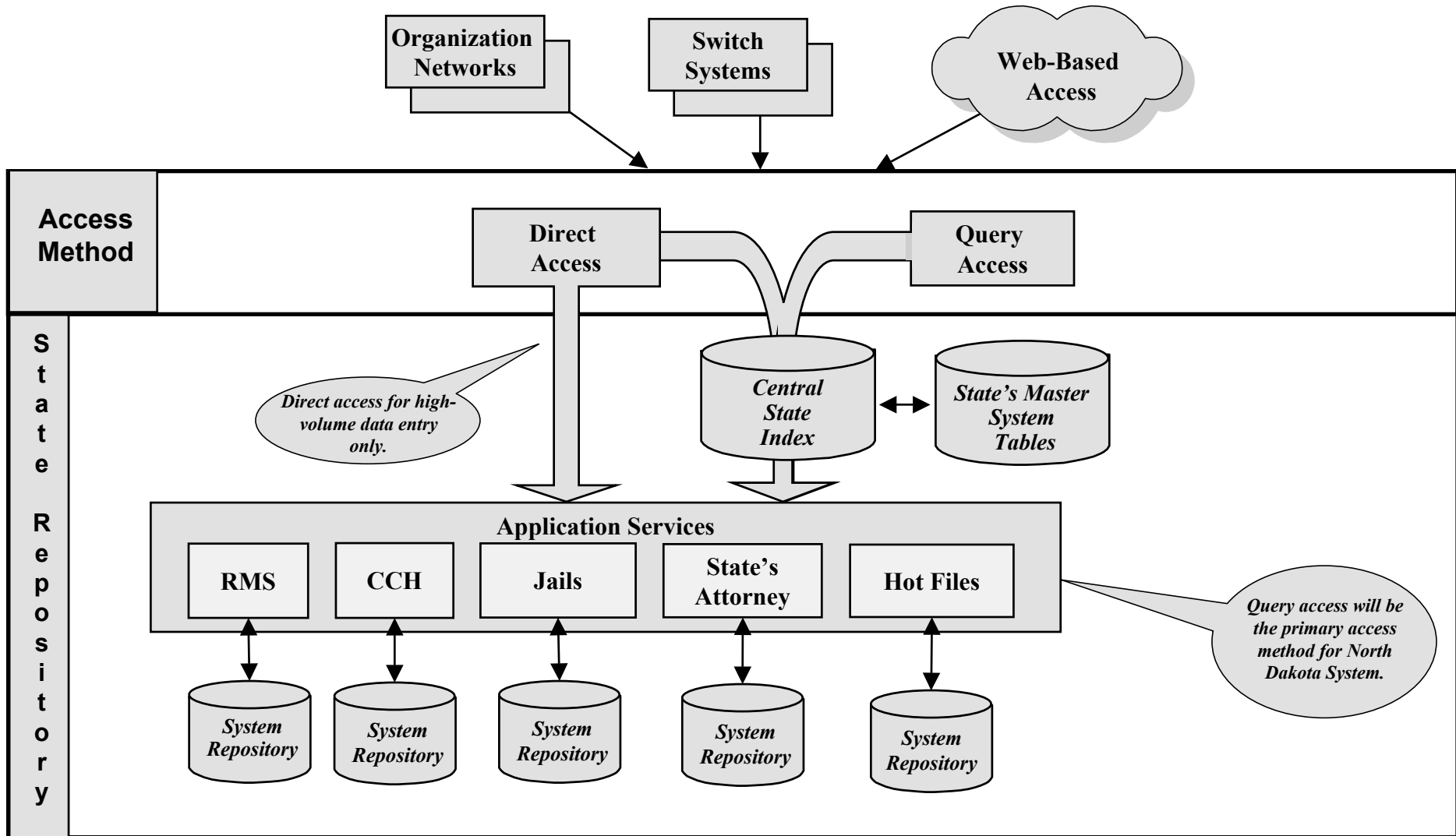
- The application services will pass the key information from the master index to the servicing application to allow a direct information lookup.

- Cross-system queries will be executed through the master indexing system.

- Access should not degrade performance.

- Access will be easily maintainable.

- Specific implementation standards will be followed:

    » Queries will be able to fully utilize the index services available to applications.

    » Indexes will be based upon high-speed algorithms that support the volume expected within the CJIS environment.

    » Services will utilize the master index for access to information.

    » For purposes of the audit and security models, two categories of data access exist: direct and query.

The principles outlined above will enhance CJIS abilities to implement the data access vision. Clearly, a central theme contained in the principles is that the master index will be used whenever possible. The principles guide the design decisions listed in the next subsection.

C.   DESIGN DECISIONS

The conceptual design guidelines provide the tactical design decisions that guide the data access design. These guidelines will be used to structure the physical implementation characteristics of the data access methodologies. All construction and implementation choices will support the data access design outlined by the following guidelines:

- The goal of the data access design is to eventually eliminate the central repository and rely directly on the data from the actual system repositories.

- The central design feature of the data access methods will be through the use of specific defined indexes.

- These defined indexes will be independent of the data repositories that they support but may exist within the same physical data store.

- The access method (direct and query) will use the independent index.

■   The long-range goal of the design is construct all indexes within the master index and utilize that index to gather the desired data from the specific system-level data repositories where the systems exist.

The design decisions are supported by discussion notes described in the next subsection.

D.   DISCUSSION NOTES

The discussion notes that support the data access design are outlined below.

■   Application access points must be clearly documented during the design and specification phases so that the access methodology can be validated.

■   Construction and implementation schema must clearly articulate the access methods that will be used for each service.

■   Security within an application and the data store must support both access methods if they are utilized within that application.

These discussion notes directly affect the ease of constructing and maintaining CJIS services.

APPENDIX O
INTEGRATION ARCHITECTURE PACKET

INTEGRATION ARCHITECTURE PACKET

The integration architecture is the most complex architecture of the CJIS environment, yet it is the one with the fewest components. The integration architecture concepts center around a system to exchange messages, an index to link information, a Web site to provide the information, and a repository to store rules and some related CJIS information. The architectural design to implement this straightforward concept is complex and requires an established design and clear implementation strategy. Adherence to the principles and design described in this architecture packet will minimize problems and implementation issues. EXHIBIT O-1, which follows this page,[1] provides a logical view of the integration architecture.

A.   VISION

The integration architecture will support the full range of information exchange, including Publish/Query, Push/Pull, and Subscription/Notification capabilities. This architecture will be positioned to provide justice community access as well as appropriate nonjustice access, such as other government agencies (e.g., Department of Health). In addition, the integration architecture will facilitate private sector businesses and the general public when the state is ready to move to these types of access.[2] Additional key concepts within the integration vision include:

- The portal will be deployed to allow publication of CJIS information as rapidly as possible.

- The index will be a priority for CJIS to allow publication through the portal and subsequent work efforts to deploy the message exchange.

- The message exchange is a key component for integration that will allow a system to have one interface to the message exchange, which will then determine where and how additional information will exchanged. This rule-based model will facilitate complex information transaction throughout the CJIS environment.

The integration vision is supported by the principles outlined in the next subsection.

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[1]   This was also provided in Section V of the Technology Architecture document as EXHIBIT V-3.

[2]   It is important to note that the vision includes eventual business and public access; however, this vision will not be realized for a number of years.

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INTEGRATION ARCHITECTURE
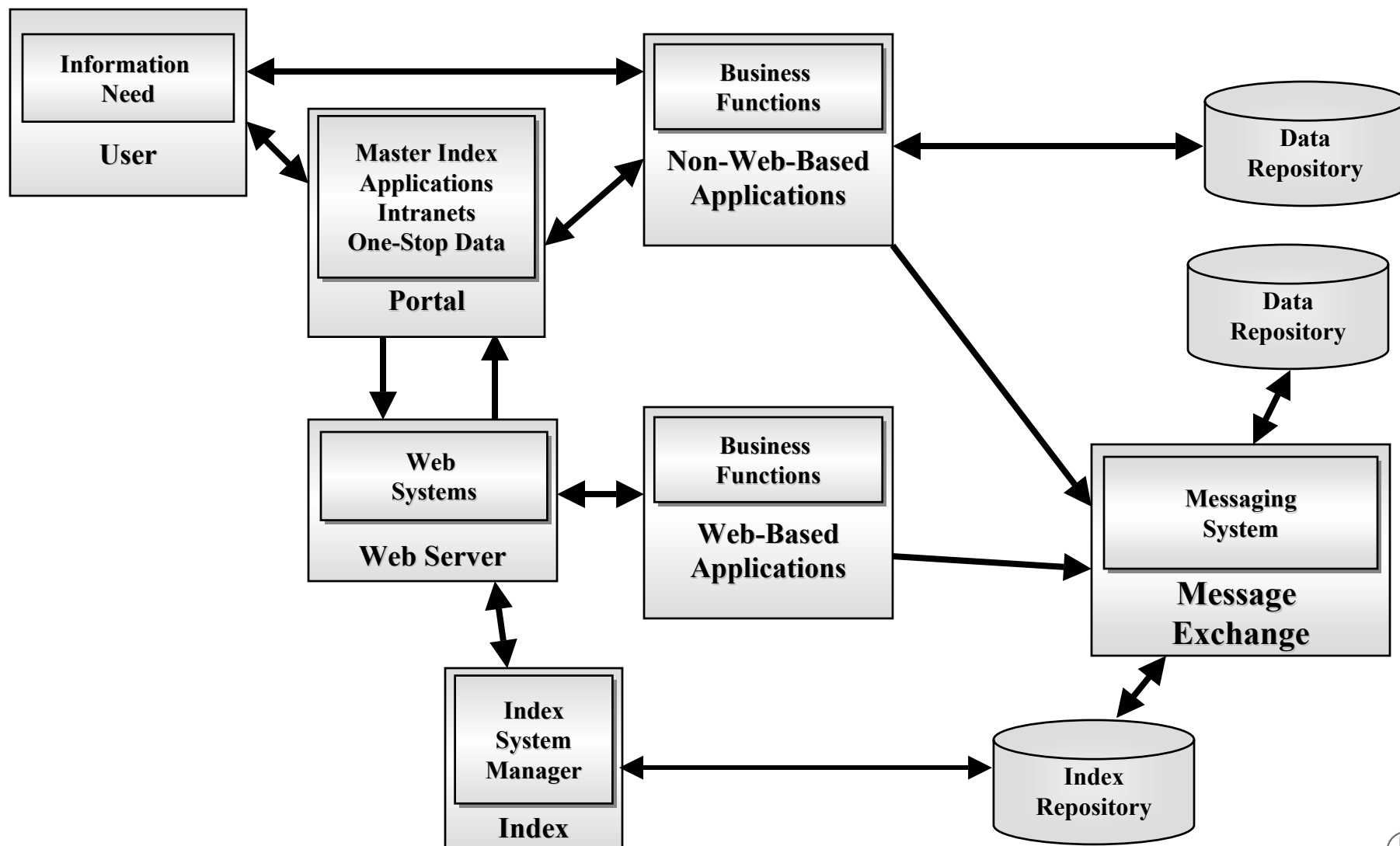
B.   PRINCIPLES

Several key design principles guide the architecture. These principles provide the rationale that will be used to determine design choices during creation and implementation of integration components.

■   Master Index

The data definitions in the CJIS Data Dictionary provide key index information. The information exchange and query capabilities of CJIS require a master index that provides critical linkages between information used in the various CJIS processes. The master index provides this information for the CJIS environment. The index will be updated whenever a CJIS transaction is passed to the integration environment.

■   Portal (One Stop)

The portal will act as the CJIS information broker for all user-initiated, Web-based requests for information. Although detailed in APPENDIX M and M-2, the role fulfilled by the portal in the delivery of information is the central theme for the publication layer in the integration model.

■   Exchange Rule Base

An exchange rule base functions as the brain and primary logic source for the integration architecture. Rules will be defined for every piece of information that is sent to the integration backbone.   The rule for a particular piece of information, called a "document" by SEARCH, will specify how the integration architecture will process the document. Several actions, called methods in the message exchange vernacular, are typically specified by a rule and may be an exchange, update to the index, query or response, and other actions that support CJIS communication. The rule base is often physically located in the CJIS repository.

■   CJIS Repository

The need to store the rule base, master index, and a subset of CJIS data is fulfilled by the CJIS repository. This is a high-availability database or databases that only support the CJIS environment. The implementation needs of the CJIS environment will dictate sizing and physical structure of the repository.

■   One-to-Many Exchanges

A key focus of the integration environment is to create one rule-based CJIS to system interface. This interface and the CJIS message exchange and supporting rule base are responsible

for handling information movement from one system to another within the CJIS environment. This eliminates the need to create system-to-system interfaces by replacing those needs with the ability to modify the rule base to handle the information exchanges. This greatly simplifies maintenance and support. This topology also adds a degree of quality in information moving through the integration environment since it is available for validation by other CJIS organizations and utilization wherever needed.

■ <u>State Radio Switch</u>

The integration architecture will create a message exchange to state exchange interface. This will allow state radio to add any switch-based query necessary to the NDLETS environment as well as adding NDLETS capability to the integration environment.[3] It the long-term view of the integration architecture, NDLETS could be delivered through the Web portal and integration architecture.

These principles are supported by the decisions in the next subsection.

C. <u>DESIGN DECISIONS</u>

The following architecture decisions have been established to guide the integration efforts in support of CJIS publication and information exchanges.

■ <u>Utilize the Portal for CJIS Applications</u>

The principle of one-stop access is based on the ability of the integration architecture to manage security, access, and information exchanges between CJIS applications. To accomplish this, CJIS applications should be accessed through the portal.

■ <u>Base the Message Exchange on a Transaction Server Offering</u>

The message exchange is a complex software application that is available on the commercial market. North Dakota will acquire a transaction server offering to meet the requirements of the message exchange. North Dakota staff or contractors may then adapt the commercial software to support an integration rule base and the information exchanges identified in this Technology Architecture document.

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[3]   Within the authorization requirements of NDLETS, NCIC, and NLETS.

■   Utilize CJIS Data Repositories

The CJIS data repositories will only data warehouse information that is not available on a 24/7 basis. In most cases, only a subset of the actual information will be housed in the repository. The actual design will be based on the need to deliver that information after hours.

■   Maximize XML and SOAP Protocols

The integration topology will support XML and SOAP. These protocols will allow the integration to maximize the rule base by dynamically enabling rules through SOAP methodologies. In addition, the rule base should be XML-based to allow simplified maintenance and automated rule change capabilities.

■   Design Systems With Only One Interface

The integration topology will be based on the fact that each system has only one interface to outside systems.[4]

The decisions highlighted above provide overall design guidance to the information component of the application layer on the integration model included as EXHIBIT O-1. A specific design packet for the information architecture packets is included:

■   *Local Agency Data Submissions Design Packet (APPENDIX O-1).* The packet outlines data submission design principles and decisions for a typical local agency. This design packet will provide agencies like Fargo and Grand Forks with the general design specifications for a CJIS interface.

The design packets support the integration architecture by highlighting specific points that meet the needs of requirements identified in the CJIS requirements document.

D.   DISCUSSION NOTES

The following discussion notes provide additional information and guidance for the integration architecture.

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[4]   This applies to CJIS systems only. Non-CJIS systems will not be supported by the CJIS integration architecture at this juncture.

- The physical devices currently available to deliver the integration architecture discussed here are primarily available from IBM and Microsoft, although within the last 18 months several niche products have begun to gain acceptance in the marketplace. The product decision should be based on the need to fit within the existing architecture and to provide a high-availability solution.

- The design outlines a need to use CJIS components within the architecture to facilitate common information contexts and simplify maintenance and administration. Although this may be achieved in the long-term CJIS integration vision, the current application offerings are generally not capable of supporting this feature. CJIS components should be integrated into existing applications whenever a current system feature is changed or enhanced. All acquisition efforts should require the ability to utilize the integration architecture, although most vendors will struggle initially with the concepts.

- The use of the portal may seem overly strict in terms of the environment described in the technology architecture document. This is not the case; rather, the intent is to utilize the Web site design presented in APPENDIX M-2 to support links to existing or non-CJIS applications. The intent is not to physically package those applications within the environment, but simply to provide the starting point and supporting integration points.

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LOCAL AGENCY DATA SUBMISSIONS DESIGN PACKET

This subappendix provides a visual representation of the process used by local agencies to submit data to the CJIS environment. The submission process vision and principles described below provide the general framework and purpose of the data exchanges. The overview provided by the conceptual model creates an understanding of the activities that occur when information is moved from the records and prosecution systems. The diagram provides the documentation necessary to ensure a common understanding of the environment. This common understanding is an important portion of the supportability and maintenance of the information transfers.

A.   VISION

The data submission process within the CJIS environment is the central data movement mechanism. The process consists of two major components: the law enforcement records and the court case management records. Once integrated within the CJIS environment, these two components will be linked through related indexes, which are then linked to the overall master index structure. EXHIBIT O-1-1, which follows this page, depicts the logical process flow for data submission showing the component activities in support of the related applications areas. Additional key concepts within the visualization include:

- Security is made through routine CJIS methods.

- Information is transferred securely through the existing ITD WAN.

- Each transfer has identified formats that are required for successful transfers.

- Supporting information-loading components are required within CJIS to complete the data transfer.

- Editing and validation occur at multiple levels and serve specific functions within the overall process.

- Data transfers are loaded and indexed in common manner within the central repository based on existing business logic.

The local data submission vision is supported by the principles outlined in the next subsection.

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LOCAL AGENCY DATA SUBMISSION
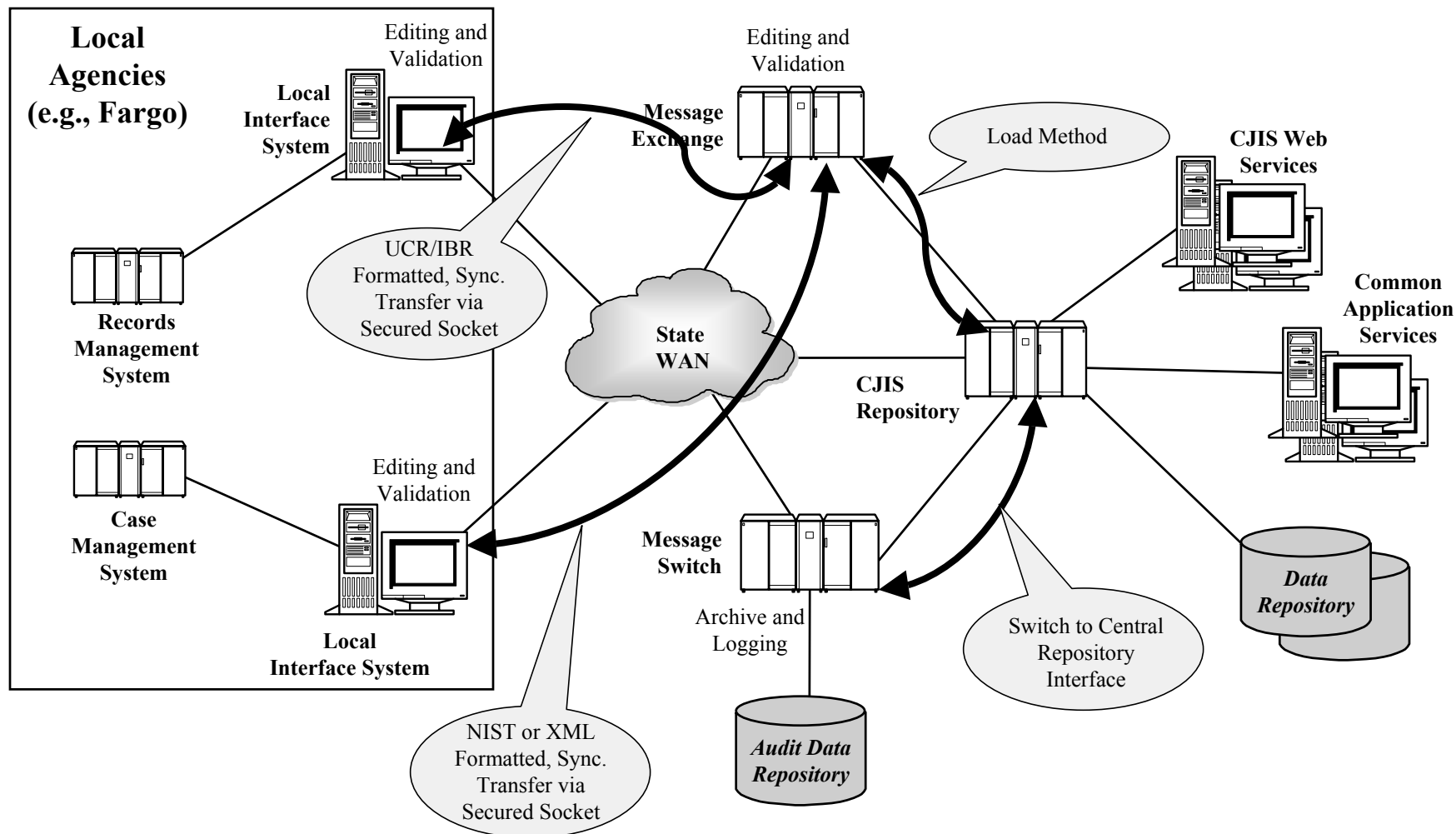
B.   PRINCIPLES

Several key design principles guide the transfer process. These principles provide the framework for the current processes.

- Data transfer standards will follow related system needs from both the local systems and CJIS infrastructures.

- Auditing will occur on all paths.

- Transfers should not create excessive loads on the central repository or message switch. Transfer size and timing will be adjusted should excessive loads occur.

The principles guide the design decisions listed in the next subsection.

C.   DESIGN DECISIONS

The design decisions that guide data transfer construction, implementation, and maintenance are described below. These decisions will be used to structure the physical implementation characteristics of the information transfers from local agencies to the state. All construction and implementation choices will support the centralized index and component data store model outlined by the related guidelines and specific transfer guidelines below:

- Future data transfer load routines will be based on components used to load and index information in the central repository.

- Existing data transfer load routines will be retrofitted to utilize the data center and component structures as rapidly as possible as time and staff availability permits.

- Data transfers will be separate and independent from each other.

- Data transfers may share objects within the transaction server but will ensure that unique objects actions are created for each data transfer process.

- Normal CJIS security standards will be maintained by all data transfer mechanisms.

- Records management system information will be formatted by the local system in UCR/IBR-required fields and transferred in XML.

- Prosecution case management system information will be formatted by the local system in NIST formatted fields and transferred in XML.

- Data transfers will be based on file transfers between systems.

The construction of independent data transfers supports the overall architecture. The key to the design is the ability to easily change or move a data transfer without disrupting the environment whenever required. In addition, this design allows use of the centralized lookup table feature that is intended to simplify code table maintenance and consistency. This feature will require some additional existing data transfer modification, but it will ensure consistent data tables that are essential to the vision. The design decisions are supported by discussion notes described in the next subsection.

D.   DISCUSSION NOTES

The data transfer discussion items include the ability to sustain the index and transfers as they are modified or created, and implemented within the CJIS environment. Additional notes are outlined below.

- Clear audit and logging requirements must be identified for each data transfer.

- The methods used to create the data transfers will be consistent between those used with all other data transfers.

Long-term data transfer maintainability and manageability is dependent on successful management of these issues.

APPENDIX P
PLATFORM ARCHITECTURE PACKET

PLATFORM ARCHITECTURE PACKET

CJIS operations and management are, and will be, supported by an array of computerized applications. These applications are run on host, server, and client platforms. These key strategic assets must be managed to maintain their value and to minimize their cost of ownership. The technology architecture that supports North Dakota's future CJIS vision will be based upon a set of platform architectures that support primary CJIS business activities. The Implementation Plan in the next planning deliverable identifies which of the platforms may need to be replaced, and which are currently planned to evolve, to provide the future functional environment. The platform architecture is represented by the vision below.

A.   VISION

The future platform architecture will be largely based on the current infrastructure model, but will include additional features needed to support improved security, performance, and availability in the CJIS environment. The need to use current systems and minimize additional platform purchases is recognized as a critical success factor for CJIS. Although some new equipment will be necessary, every effort will be made to ensure funds are committed effectively.

B.   PRINCIPLES

The platform component of the systems infrastructure layer consists of host and server platforms and client platforms. The target client and server environments will be discussed individually; however, a few common principles and tactical decisions apply to both platforms. The following principles apply to both client and server platforms in the target CJIS infrastructure environment.

■   Invest in Stable Technology

North Dakota should purchase platforms and operating systems that are tested and have widespread acceptance by the IT industry. CJIS should avoid the absolute newest technologies unless the implementation and support risk can be clearly justified. Production systems should not rely on alpha and beta product releases.[1] The basis for all server decisions should be ensuring the highest quality of service to the end users. Trade-offs between the best

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[1]   Many IT support organizations, including most of the CJIS organizations, have limited technical staff resources. Therefore, a prudent strategy is to wait to implement a new technology until at least the first patch is available for a production-level release to help ensure that first-release bugs and problems have been worked out by a large number of real-world users.

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performance and supportability need to be balanced and factored into long-term platform decisions.

■   <u>Avoid Obsolescence</u>

Defined platform standards are not intended to force retirement or replacement of existing systems. Long-term plans and support costs must be considered when implementing new systems. CJIS technology plans need to consider strategies for the removal of nonstrategic or retired technologies. Strategies are essential in CJIS plans for providing paths to move from obsolete technologies, and long-term technology migration/implementation plans will be necessary to resolve technology obsolescence within the agencies. Proper planning for technological obsolescence must be based on the technology expiration of systems, not the forecasted budget life cycles. Procurement of retired technologies should be considered only as a stopgap measure.

■   <u>Implement Vendor-Neutral Solutions</u>

Vendor-neutral solutions should be applied whenever possible. Servers will be implemented as component-level tools, not to be coupled with, or dependent upon, proprietary vendor application offerings. Hardware vendors should be ISO 9002-compliant.

■   <u>Use Common Manageability and Support Options</u>

Hardware and software should comply with industry standards for remote control and monitoring. Vendor and configuration considerations should include the availability of trained field support and the ability to accommodate upgrades (both by ITD/CJIS employees and vendor staff).

■   <u>Implement Replacement Plan</u>

North Dakota should have a server platform replacement policy. System cascading should be employed to reuse older equipment where feasible and cost-effective. The CJIS project team must also determine old equipment support strategies, and it should develop a defined support cost limit to balance the value of old equipment and cost of maintenance and support.

C.   <u>DESIGN DECISIONS</u>

The following tactical decisions should apply to both the server environments and client systems within the CJIS infrastructure environment.

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- **North Dakota will establish a CJIS Data Center.**

  All platforms deployed in the CJIS environment will be deployed in an ITD-supported CJIS Data Center. This will be a specific group of systems that support CJIS and reside on a physically separate network from the rest of ITD-housed systems. This is discussed in the Data Center Design Packet, APPENDIX P-1.

- **Platforms will be chosen that have remote manageability.**

  All platforms deployed in the CJIS environment will have remote management capability. This applies at the server level in support and operations and at the client level with the ability to update and maintain the end-user device.

- **Platform support will be Web-based.**

  Platform support should be Web-based. This will allow the remote manageability necessary across the CJIS environment. In addition, it allows the support staff to primarily utilize the same environment that the CJIS staff utilizes.

- **Server and client devices will be selected with common infrastructures.**

  Platforms will be selected that utilize common or similar components. This will allow CJIS support staff to maintain a small, common replacement part pool that may be used to rapidly repair devices. In addition, similar operating systems and software drivers will enable a simpler maintenance effort within CJIS staff. The commonality will focus on all possible components of the platform design.

- **North Dakota will seek to create master contracts for platforms that will support all, or multiple, CJIS members.**

  The state will take the lead in creating the purchasing mechanism for the platform components that will utilized by the CJIS. This will include cooperative purchasing contracts wherever possible to achieve economies of scale and promote commonality in the technical environment.

These decisions will focus the platform efforts into common approaches that support the CJIS. The specific function design issues are detailed in the following server and client sections. Specific design packets for the platform architecture packets are:

- *Data Center Design Packet (APPENDIX P-1).* The packet outlines data center design principles and decisions.

- *Server Design Packet (APPENDIX P-2).* The packet outlines tactical server design principles and decisions.

- *Client Design Packet (APPENDIX P-3).* The packet outlines tactical client design principles and decisions.

- *Network Design Packet (APPENDIX P-4).* The packet outlines tactical network design principles and decisions.

- *Security Design Packet (APPENDIX P-5).* The packet outlines tactical security design principles and decisions.

The design packets support the platform architecture by highlighting specific points that meet the needs of requirements identified in the CJIS Requirements Document.

D.   DISCUSSION NOTES

The following discussion notes should be considered in support of the information presented in the previous subsections.

- The CJIS Data Center may seem redundant; however, specific security and access requirements that organizations must comply with to access federal system such as NLETS and NCIC are easier to validate and manage in a separate topology. This does not mean that these systems have to reside is an isolated building; however, specific procedures and rules must be established.

- The client design packet, APPENDIX P-3, is not intended to be a restrictive set of purchasing limits for CJIS users. The client design packet outlines best practices and the suggested specifications for clients devices that will be compatible with CJIS. In general, CJIS will seek to operate on all client devices; however, some technologies are simply not practical on older workstations and client devices.

DATA CENTER DESIGN PACKET

This subappendix provides the design view of the servers that should be used to support the North Dakota application and Web site environment. The infrastructure that supports the CJIS environment is critical to CJIS's success. The design model establishes the criteria for the technical system infrastructure that provides the environment's application services. The vision of the system infrastructure is outlined below.

A.   VISION

The vision of the technical infrastructure focuses on three primary zones that serve specific purposes for the application services. EXHIBIT P-1-1, which follows this page, depicts the structure of the data center server model. This model consists of a demilitarized zone (DMZ), server zone, and a backup zone. Specific design elements of this vision are listed below.

- The DMZ will contain the Web servers that provide the actual services to the user community.

- The server zone will house the primary non-Web servers and data repository servers.

- The backup zone will house the CJIS backup system and will operate on an independent LAN environment.

- The data center will be based on a key, high-availability, database server and key Web servers configured in a farm arrangement to support both high reliability and Web service compartmentalization.

- A central site that has the capability and reliability to support the technology will provide the support and management for this infrastructure.

The technical data center vision is supported by the principles outlined in the next subsection.

B.   PRINCIPLES

The vision is supported by specific design principles. The important design principles that affect the server model are listed below.

- Database instances will be aggregated on a single server or a server cluster if possible. This does not preclude the existence of server databases on the single set of hardware.

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DATA CENTER MODEL

NOTE: This model depicts primary data center device types only.
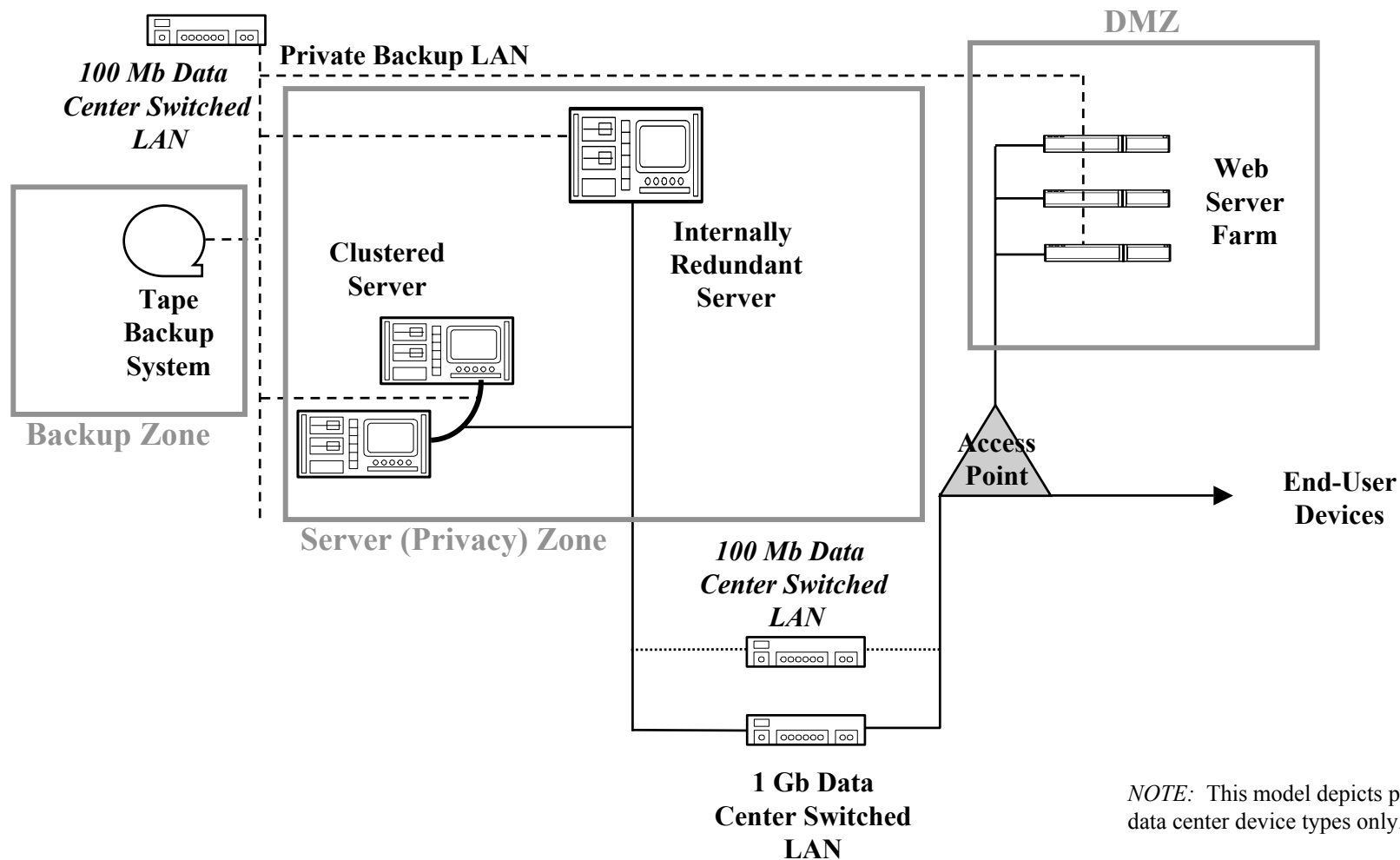
- The Web servers will provide multiple Web sites to allow for ease of security and performance configurations.

- The primary network structure will be a 1 Gb LAN that supports the server zone.

- If feasible the server zone should include a redundant 100 Mb LAN that can provide immediate primary LAN fail-over.

- Servers that are not clustered will be internally redundant wherever possible.

- Servers will be internally redundant as well as configured with multiple support and network paths wherever possible.

- Server interfaces should be to a switched 1 Gb Ethernet LAN.

The principles guide the design decisions listed in the next subsection.

C.   DESIGN DECISIONS

The design decisions guide the data center server model. These decisions will be used to structure the physical implementation characteristics of the data center devices and topology. All construction and implementation choices will support the overall environment outlined by these guidelines:

- Only CJIS-specific systems will be housed in the CJIS Data Center.

- Supporting redundant interfaces should be to a switched 100 Mb Ethernet LAN.

- Device utilization should not exceed 70 percent for any sustained period.

- Performance monitoring of all components will be done regularly to ensure effective operations.

- The application environment will be housed in the data center and will be supported by CJIS.

- The central design will be based on an n-tier design consisting of application (Web-based) services supported by transaction services connected to the data repositories.

- Every effort will be made to compartmentalize design elements so that specific maintenance efforts are conducted at the discrete element level.

- Servers will be structured to support technical aspects of the environment, not specific application structures.

A consolidated CJIS Data Center will have several impacts on the specific design of component systems. The impact is described in the discussion notes below.

D.   DISCUSSION NOTES

The data center server model issues that must be managed are primarily centered on the ability to support the environment. The specific issues that must be managed are outlined below.

- The n-tiered approach will require significant staff expertise that must be factored into the transitions from vendor services to CJIS-provided services.

- The network structures that operate the data center must be correctly tuned and continuously monitored to ensure that back-end process do not choke out end-user communication.

- The consolidated center offers CJIS the opportunity to architecture component systems in modular format that will take advantage of the centralized infrastructure. Specifically, CJIS systems should be based upon components built within the central transaction server environment, not in the database or application layer. This will allow all of the CJIS applications that use a specific type of function such as a criminal history inquiry to use a common object that will return the same information to all calling applications. Appropriate data center support for this development style is critical to its success.

- The data center must be established to support multiple calling applications and systems.

- It must also support a detailed security component layer that will identify calling applications and sense the appropriate security needs for that application.

- The data center must handle the complex loading that a major event could cause across multiple systems.

- It is important to realize the benefit offered by the design approach. The primary benefit of the data center is that the ability to support the application environment is significantly enhanced by the control and central maintenance that is offered by the transaction approach. Additional benefit will be derived from a reduction in the number of technical skills necessary to support the various systems. This reduction is a result of the needed for common skills, not system-specific skills. Another significant benefit is the ability to implement new functionality based on existing components within the data center, through the use of existing objects that are already tested and operational. These benefits will yield improvements to the entire CJIS environment.

SERVER DESIGN PACKET

This subappendix provides the design view of the servers that should be used to support the North Dakota application and Web site environment. The infrastructure that supports the CJIS environment is critical to CJIS's success. The design model establishes the criteria for the technical system infrastructure that provides the environment's application services. The vision of the system infrastructure is outlined below.

A.   VISION

Server standards will help the department reduce the TCO and increase operational effectiveness. Standards will allow support staff (both central and decentralized) to deliver higher-quality service and support by maintaining a defined expertise for the standard environment and topology. Using servers from a standard vendor (and a standard operating system level) is not only cost-effective, but it makes management simpler and integration easier across multiple agencies and within a large geographic area. While it is recognized that multiple environments will continue to exist for the foreseeable future, there should be a strategic emphasis to reduce the number of such environments wherever possible. Several factors, including specific server decisions, design, and operating systems, influence the overall server architecture and are discussed in this subappendix.

B.   PRINCIPLES

The server design principles discussed above are critical in the design and selection of specific servers. The principles detailed below focus on the use and implementation of the devices deployed under the previous set of principles.

- **The server platforms used within the CJIS will be designed to ensure capacity, supportability, economy of operation, and reliability.**

   These four criteria will provide the decision template to determine the correct balance between cost and operational capability that is available in the server market. The goal of server acquisitions will be to get as much capability as possible above the minimum level needed within the available funding. Priority consideration in the design and pricing will also be given to the elements of the server that provide reliability and supportability. Other considerations should be secondary.

- CJIS servers will be deployed, wherever possible, under a common, pooled enterprise licensing schema.

    The choices of server platforms should be limited to the types of servers supported by a CJIS licensing pool. This reduces the total cost of CJIS infrastructure and facilitates the next design principle. A common licensing schema will enable simple server licensing, not client licensing, as servers are added. Ideally under this scenario, a fixed cost should be accessed for each added server.

- Servers will be designed so that incremental volume increases can be supported with additional servers or components.

    Where possible, server functions will be designed so that server farms or clusters can be deployed to share loads and provide an easy, incremental increase in performance when needed without significant effort and upgrades. Where this is not possible, server design will be modular to allow component upgrades that will increase performance without serious interruption to the CJIS environment.

Given these principles, several tactical decisions help to further refine the target server environment.

C.   DESIGN DECISIONS

Key elements in decisions and implementation of server hardware are summarized as follows:

- Key servers will be deployed in clusters and server farms.

    The primary server implementation format for key servers in the justice environment will be server clusters or server farms. This allows one or more servers to be employed in a specific operational load to support a single logical device to the CJIS enterprise.

- The CJIS will deploy servers that have a full 1-year warranty on all components.

    The minimum server warranty that will be acceptable on any server added to the environment will be 1 year of full coverage. Some vendors are now offering 3 years of full warranty. The 3-year warranty will be preferred; however, the 1-year warranty is required.

- **The CJIS will deploy servers that have dual network interfaces.**

  The servers deployed in the CJIS environment will have a minimum of two network interfaces. This will allow continued operations should one of the interfaces fail. In addition, most devices will aggregate the two interfaces and allow greater throughput from the device.

- **High-volume and medium-volume enterprise servers should only utilize RAID disk arrays.**

  The servers deployed in the CJIS environment will use RAID array for all disk storage. This will allow increased reliability of the systems and significant recoverability options if an individual disk fails. Server volumes categories are discussed in the bullet below.

- **Servers inherently have varying capabilities based upon their configuration and operating systems employed.**

  The CJIS will have a wide variety of applications, with performance and availability requirements that differ between business functions. Enterprise servers can be divided into three categories. They include:

  » **Enterprise/High-Volume Servers**

    At the CJIS Data Center, servers are employed that have the ability to manage the processing requirements of the enterprisewide, large-user-volume, or mission-critical nonstop applications. Applications operating on these enterprise servers are expected to have a relatively high volume of transactions, which will require increased processing capabilities.

  » **Medium-Volume Servers**

    The CJIS will employ enterprise servers of medium capability for smaller applications not requiring as robust resources as those targeted for the high-volume server platform. These servers will provide processing services for those applications that will primarily be accessed by smaller groups of users.

  » **Departmental Servers**

    Departmental servers provide a smaller, more defined level of capacity. The CJIS has several requirements for small-volume departmental servers. Departmental servers will be deployed outside the CJIS Data Center to manage other aspects of the overall distributed CJIS environment. Since requirements in this category will be highly variable based upon number of users, these servers will be highly scalable. It is important to note that depending on functionality, multiple applications could reside and operate on the same server for each category of servers.

- **CJIS will deploy the CJIS data repository in a database pool on enterprise/high-volume servers.**

  The database pool will be deployed on high-volume enterprise servers. This will allow significant capability within a single data device. The database pool will consist of several devices, as needed, to meet system design and loading considerations.

- **CJIS will deploy the message exchange on enterprise/high-volume servers.**

  The gateway will be deployed on a high-volume enterprise servers, configured in a cluster environment. This will allow significant capability within a single logical device to meet requisite service levels, information transfers, application support, and overall capacity. The cluster configuration is necessary because most gateways do not yet support server pools.

- **CJIS will deploy the CJIS index on enterprise/high-volume servers.**

  The CJIS infrastructure will deploy an index service on a server cluster. The index is a high-transaction device that will benefit from a single logical device delivering a high service level and strong overall capacity. The cluster configuration is necessary since most index offerings do not yet support server pools.

- **CJIS will deploy a Web server farm on medium-volume servers.**

  The Web server farm will be deployed on medium-volume servers. This will allow significant capability within a single device to provide a high level of Web-based services, application support, and capacity. The Web farm configuration will also allow several of these devices to be employed and scaled as needed to meet user demand and application loading.

- **CJIS will deploy some functional support components on departmental servers.**

  The following CJIS functional application areas will be deployed on departmental servers:

  » Network services, such as monitoring and security.

  » Work group services, such as file and print servers.

  » Point-of-presence devices, such as Domain Name Services.

The server functional design and associated decisions provide a logical view and strategy for the CJIS server platform layer. These decisions establish the framework for specific technology choices. The reality is that many technologies and products do, and will, coexist in the CJIS infrastructure. Discussion notes listed below also frame the server design discussion.

D.   <u>DISCUSSION NOTES</u>

It is impossible to have a single product and operating system standard; therefore, secondary, accept-able standards do and will exist within North Dakota and other agencies for the foreseeable future, especially as they apply to technology-specific applications, such as Live-Scan. The long-term vision is that these server principles and decisions will guide the CJIS toward that vision.

CLIENT DESIGN PACKET

This subappendix provides the design view of the client devices that should be used to access the North Dakota CJIS environment. Over the last few years, as desktop and distributed computing use has increased, North Dakota has been empowered to procure and implement a wider variety of computing systems and technologies. Some of these systems have followed similar patterns in configuration, while others have not. Increasing pressure for common computing platforms and configurations provides the impetus for the definition of a CJIS client architecture. The vision of the client device infrastructure is outlined below.

A. VISION

The vision for employment of the client-server platform is to seek and maintain acquisition relationships that will directly benefit and support the justice community's complex computing needs. While North Dakota will retain the ability to control configurations through the normal ITD processes, this vision optimizes the cost of the overall CJIS hardware investment. While this design packet outlines the qualities of preferred systems, the individual CJIS organizations must determine the appropriate platform to suit their business needs.

B. PRINCIPLES

The key principle and characteristic of the CJIS client environment that extends beyond the common set of principles is that client devices will be widely distributed. This means that the ability for CJIS business staff to access a client device should not be hindered by the lack of available data input/retrieval devices. All end users should have a readily accessible device to perform required work-related functions. Depending on job function, end users may require multiple client devices, while others may require only a single device. A variety of client computing devices may be selected to satisfy the varying needs of the CJIS end-user environment. Key characteristics of the end-user environment include:

- Common computing environments.

- Expanded communications capabilities.

- Standardized environment.

- Highly supportable environment.

- High degree of electronic connectivity.

Given these principles, several tactical decisions help to further refine the target client environment.

C. DESIGN DECISIONS

Several specific decisions relate to the client environment. They include:

■ Any CJIS-deployed clients will utilize current operating systems that have at least 1 year of remaining life cycle.

The client operating system will have at least 1 year until the manufacturer no longer supports that system. All CJIS devices should currently use Windows 98 or greater.

■ Client devices must support Windows-based browsers.

The client device must support a Windows-based browser. The CJIS environment will be Web-based, and all clients must be able to utilize that environment.

■ CJIS-deployed devices will be based on a common, enterprise licensing schema.

The CJIS environment will be based on a common licensing schema that will enable simple client licensing, not licensing for each server access by the client, as clients are added. A fixed cost should be accessed for each added user.

■ CJIS deployed clients will have a full 3-year warranty on all components.

The minimum client warranty that will be acceptable on any client device added to the environment will be 3 years of full coverage.

These decisions establish the framework for specific client device technology choices. The reality is that many technologies and products do, and will, coexist in the CJIS infrastructure. Discussion notes are listed below.

D. DISCUSSION NOTES

■ Although most client devices will be the responsibility of CJIS organizations, the opportunity to fund bulk purchases through CJIS may provide local agencies the devices needed enhance their technology levels.

- CJIS or ITD may consider establishing a blanket acquisition mechanism for CJIS partners that may be used statewide to purchase devices to implement CJIS access.

NETWORK DESIGN PACKET

This subappendix provides the design view of the network that should be used to support the North Dakota application and Web site environment. The network infrastructure that supports the CJIS environment is critical to the CJIS integration backbone's success. The design model establishes the criteria for the technical system infrastructure that provides the environment's application services. The vision of the network system infrastructure is outlined below.

A.   VISION

The vision of the network infrastructure is to provide a robust and manageable communications system that meets or exceeds the requirements of CJIS. The network design should utilize existing network infrastructure whenever possible and conform to existing network management and security standards. In essence, the state will utilize StageNet and local ISP connections and will build out StageNet as necessary. At the same time, the network design should provide for scalability and flexibility as the CJIS applications and network requirements evolve over time.

B.   PRINCIPLES

The vision is supported by specific design principles that rise out of existing ITD standards as well as the requirements of CJIS. The important design principles that affect the network design are listed below.
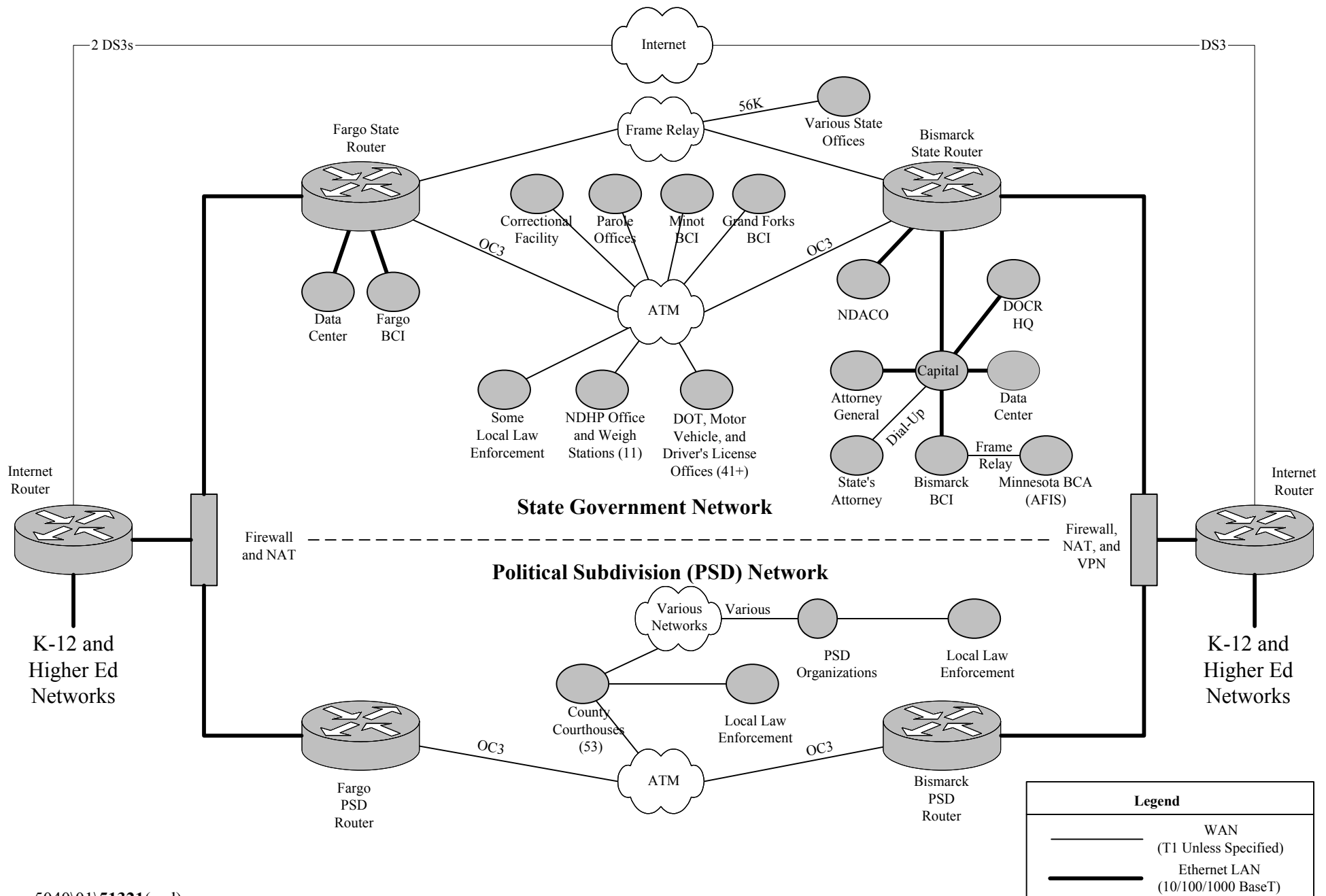
- ■   Use shared telecommunication resources.

    ITD has developed the existing state (StageNet), political subdivision, and educational networks based on a model in which network resources such as Internet connectivity and network management tools are shared. In addition, WAN connections are typically delivered through switched services such as ATM and frame relay networks rather than through dedicated connections. Assuming that the most bandwidth-intensive traffic related to the CJIS is confined to the CJIS Data Center, access to the CJIS systems across these shared telecommunications services should provide acceptable performance. EXHIBIT P-4-1, which follows this page, provides an overview of StageNet.

- ■   Ensure quality of service meets public safety needs.

    CJIS will be an important component of the state criminal justice system, and the reliability of the network infrastructure is critical to the success of CJIS. In the event of a partial or

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STATE GOVERNMENT AND POLITICAL SUBDIVISION NETWORKS

2 DS3s — Internet — DS3

Frame Relay — 56K — Various State Offices

Fargo State Router — Bismarck State Router

Correctional Facility — Parole Offices — Minot BCI — Grand Forks BCI

OC3 — ATM — OC3

Data Center — Fargo BCI

NDACO — DOCR HQ

Capital — Data Center

Attorney General — Dial-Up — Frame Relay

Some Local Law Enforcement — NDHP Office and Weigh Stations (11) — DOT, Motor Vehicle, and Driver's License Offices (41+)

State's Attorney — Bismarck BCI — Minnesota BCA (AFIS)

State Government Network

Internet Router — Firewall and NAT — Firewall, NAT, and VPN — Internet Router

Political Subdivision (PSD) Network

K-12 and Higher Ed Networks — K-12 and Higher Ed Networks

Various Networks — Various — PSD Organizations — Local Law Enforcement

County Courthouses (53) — Local Law Enforcement

Fargo PSD Router — OC3 — ATM — OC3 — Bismarck PSD Router

Legend	
WAN (T1 Unless Specified)	
Ethernet LAN (10/100/1000 BaseT)	

MTG

complete network failure, users may be able to resort to other methods of information exchange. However, some information may not be accessible until the network fault is corrected. Therefore, good quality of service is an important requirement for all network components critical to CJIS.

■ <u>Follow existing network standards.</u>

ITD has developed a number of standards and policies related to the networks and systems that they manage. ITD's network standards and policies are published at *http://www.state.nd.us/itd/planning/*.[1] Key network standards include TCP/IP as the inter-LAN protocol, Ethernet as the preferred LAN and WAN technologies, respectively.

■ <u>Invest in capacity to enable applications and integration.</u>

Specific implementations will build all network infrastructure with as much capacity as possible, practical, and within budget. The integration backbone design optimizes messaging traffic by eliminating the need for mesh interfaces; however, the volume of messages that is possible may place a significant bandwidth requirement on the infrastructure. Each implementation should maximize capacity so that the application and integration backbone can effectively communicate with the CJIS environment.

■ <u>Employ an open and secure network.</u>

The advantages of designing a network based on common technologies and open access include cost savings and compatibility. Wherever feasible, an open network will be employed that is secured by the end-to-end security design of the CJIS environment. However, security controls at several points in the network, including at the perimeter and on critical subnetworks and systems, will be utilized to maintain the security of the environment.

The principles guide the design decisions listed in the next subsection.

C.   <u>DESIGN DECISIONS</u>

The design decisions guide the network model. These decisions will be used to structure the physical implementation characteristics of the network devices and topology. All construction and implementation choices will support the overall environment outlined by these guidelines:

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[1]   Specific network standards are published at *http://www.state.nd.us/itd/planning/standards-policies/standards/ approved/std002-98.doc*.

- **Employ effective management tools.**

  Network management tools provide the monitoring and administration tools necessary to manage any medium- to large-sized network. ITD currently uses various customized management tools for administering most network systems using the Simple Network Management Protocol. However, there may be limitations to ITD's current tools and the Simple Network Management Protocol itself that may hinder effective management of the CJIS. CJIS will attempt to work within ITD's framework but will consider other management tools if they become necessary for effectively managing of the network related to CJIS.

- **Build a seamless network.**

  The design of a system of networked applications is simplified significantly by maintaining consistent network standards and protocols. By standardizing on the TCP/IP protocol for inter-LAN communications, ITD has positioned the state networks government well for applications of this sort. The CJIS network design will use TCP/IP as the network protocol.

- **Create and employ a DMZ for its public access devices.**

  An important security component of any network that connects to external networks is the division of the systems in the network perimeter into various zones according to trust. This division is usually accomplished with network firewall technologies such as packet filters or application proxies. Systems that are only accessed internally are considered to be in the "trusted" zone. Systems that are directly connected to the global Internet and are not part the of state government networks are usually considered to be in the "untrusted" zone. Publicly accessible systems that are part of the state government networks are neither "trusted" nor "untrusted" and need to be placed in a distinct zone, usually refer to as the DMZ.

- **Create a high-bandwidth server backbone.**

  Network communication requirements will be highest between the various servers that make up the CJIS backbone. Whenever feasible, these servers should be collocated within the same campus to facilitate switched, high-bandwidth connectivity using standard LAN technologies such as Gigabit Ethernet. In cases in which servers cannot be collocated and high-bandwidth WAN connectivity is not already available, it may be necessary to upgrade the WAN connectivity to meet communications requirements between CJIS servers.

These design decisions establish the framework for specific network technology choices. Discussion notes are listed below.

D. DISCUSSION NOTES

The network model issues that must be managed are primarily centered on the ability to support the CJIS environment. Specific issues are outlined below.

- Terrestrial data communications.

    » Large CJIS installations have connectivity to the CJIS and county computing resources via dedicated access speeds of type T1 (1.544 Mbps) or greater.

    » Smaller CJIS installations can connect to the CJIS and state resources via the state government network, the PSD network, or public/private Internet Service Providers.

    » Special dedicated connections will be made available from the CJIS Data Center for particular applications such as high-volume AFIS data, digital video, or other specialized high-volume information.

    » All CJIS information resources are protected via secure firewall installations.

    » CJIS information is made accessible to counties and municipalities via the state government and PSD networks.

- Wireless data communications.

    » Where commercial business has established a cellular data telecommunication networks with cellular digital packet data, CJIS will seek to utilize those services. The use of these services will depend on:

        – Coverage provided.

        – Service levels offered.

        – Performance and quality of service (especially in emergency events).

        – Cost.

    » For areas not covered by existing cellular digital packet data networks, CJIS may continue to deploy and utilize the existing State Radio system.

    » Information required by CJIS computing resources will ultimately be provided by a link from the wireless networks to the terrestrial data network.

- Internet and intranet architecture.

    » North Dakota ITD will operate and probably lead the CJIS community, owing to its position as the central resource.

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» The application environment of the CJIS vision exists in a Web-based architecture.

» CJIS will establish an intranet that will serve as the internal Web-based portal for all CJIS applications. This will include a detailed security mechanism that will validate authorized users and access to information.

» The CJIS will offer Internet services that provide secured access for authorized personnel who are not accessing information through dedicated connections.

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SECURITY ARCHITECTURE PACKET

This subappendix provides the design view of the security environment that should be used to support the North Dakota CJIS network, application, and Web site environment. The security components that support the CJIS environment are critical to CJIS's success. This design model establishes the criteria for the technical security infrastructure that provides the environment's security services. The vision of the infrastructure is outlined below.

A.   VISION

The vision of the security infrastructure is to provide a robust and manageable security environment that meets or exceeds the requirements of CJIS. Security will include:

- The definition of end-to-end security standards and architecture.

- Implementation of security at the network, system, database, and application levels.

- Implementation of appropriate security processes and procedures.

- Clear roles and responsibilities regarding security management.

The security architecture builds upon the proposed network and hardware infrastructure. With the open exchange of CJIS information, it is critical that the information be protected. The primary components of the security architecture are firewalls, intrusion detection, proxy servers, and digital certificates.

B.   PRINCIPLES

As justice agencies take advantage of an Internet/intranet-based work environment, mobile computing, and other advancing technologies, addressing associated security considerations and requirements becomes increasingly important. Serious attention must be given to the security needs of agencies in this environment. The security architecture is framed and defined through the policy framework, tactical decisions, and functional design outlined in this section. Thus, the technology security architecture helps further define security requirements and frame the development of solutions. EXHIBIT P-5-1, which follows this page, highlights the security components of the security architecture. The architecture builds upon four primary security zones as described below:

Zone 1 – Entry Zone. The purpose of the entry zone is to utilize the entrance router and firewall to control physical access into and out of the network.

STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT

SECURITY ARCHITECTURE
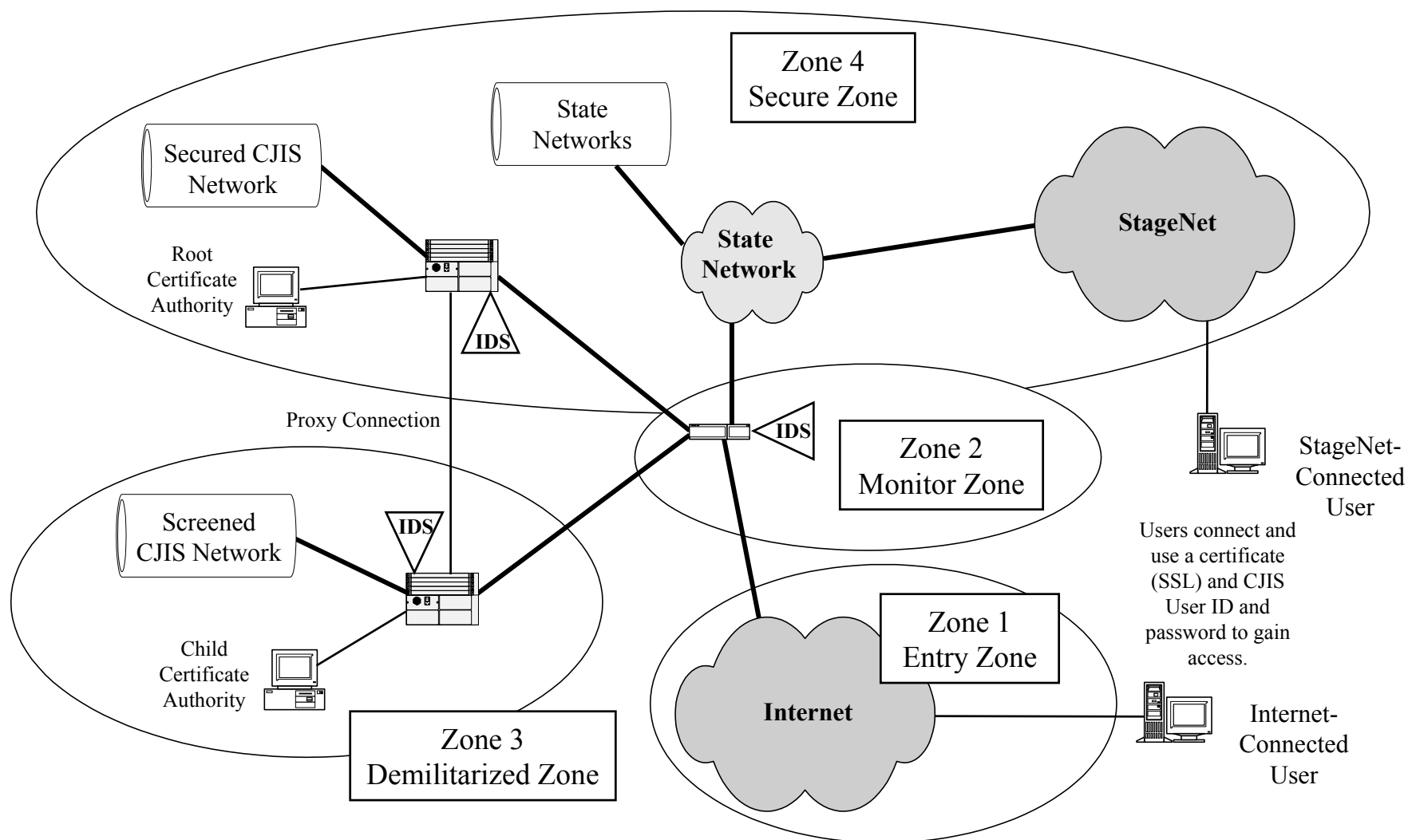
Zone 2 – Monitor Zone. The purpose of the monitor zone is to watch the network traffic at the critical branch structure between networks.

Zone 3 – Demilitarized Zone. This zone provides a secured area to place devices that will be exposed to open network traffic and have a higher risk of compromise.

Zone 4 – Secure Zone. This zone provides the area to place all server devices that require increased security and protection.

This architecture is based on several assumptions about the relationship between the security structure proposed in this document.

■   The proposed security architecture is based on a number of basic security requirements that comply with the North Dakota security standards.

■   A security audit will be performed to identify security risks and recommend specific actions to validate, refine, and address detailed security policies and procedures.

■   The technology security architecture for CJIS will be updated as a result of the security audit, as appropriate.

The following security principles will be applied within the CJIS architecture and, if necessary, North Dakota will need to revamp existing security policies and procedures to adequately implement security and meet the needs of the justice community. These security principles will evolve and expand through completion of the projects in the CJIS implementation plan. However, it is anticipated that the following policy framework will be adopted.

■   Controlled Physical Access

   Security policies and practices will control physical access to CJIS technology resources. These controls will likely include:

   »   Data center access controls that manage, track, and control the individuals who have access to data center resources.

   »   End user device controls that enable the CJIS to manage, track, and control the devices that have access to CJIS technology resources.

   »   Device authentication that allows strict authentication for access to highly secure resources and little or no authentication requirements for access to other applications and information.

» Device location controls that enable CJIS to control the network access points from which a physical device may access applications and information.

■ <u>User Access Controls</u>

Any individual accessing a system will be uniquely identified. All access will be controlled though common user account databases that maintain consistent management guidelines and audit functions. User authentication will be employed, and the authentication method will likely vary depending on security requirements of the application and information being accessed. Highly secure information and applications may involve the use of strong, two-factor authentication. Public access applications and information may require little or no user authentication.

■ <u>Access and Data Activity Logging</u>

There will be automatic logging of all session initiations, session terminations, failed access attempts, and all access violations. Data activity logging will be initiated whenever feasible. Centralized auditing and management of this information will be done by the state, although the physical activity may occur at the ITD Data Center.

■ <u>Data Encryption</u>

All sensitive data passing over public network segments or otherwise open networks will be encrypted to ensure privacy, authentication, and nonrepudiation.

■ <u>Intrusion Detection</u>

The state will actively employ intrusion detection practices to monitor activity and automatically identify and react to intrusions into CJIS IT resources.

■ <u>Regulatory Audits</u>

System audits will be performed regularly to verify system configurations and expected system usage patterns. This will be done to ensure that the correct levels of accessibility are being applied to enable the appropriate job function and, conversely, to ensure that information is not available to inappropriate personnel.

■ <u>Other Detailed Policies and Procedures</u>

Other detailed security policies and procedures will be established to manage situational concerns such as:

» Dial-in control.

» Remote access points and usage.

» Password structure and aging.

» Systems administration rights.

» New hire and exit criteria.

» Access control, logistics.

» Token issuance and aging.

» Certificate usage and expiration.

» Intrusion criteria.

» Security compromise notifications.

This policy framework, when implemented in practice, will provide the level of security necessary to safeguard the private and confidential information maintained within the justice community. Security repository design will be discussed in APPENDIX Q-1, Security and User Database Design Packet.

C. <u>DESIGN DECISIONS</u>

This technology security architecture is based on key design decisions about the requirements detailed above and the likely solutions that will be used for CJIS. The context of the security decisions are based in four areas:

■ *Confidentiality* – Information is disclosed only to users authorized to access it.

■ *Integrity* – Information is modified by authorized users and only in approved ways.

■ *Availability* – Use of systems cannot be maliciously denied to authorized users.

■ *Accountability* – Users are accountable for their security-related actions.

These decisions are described below and are followed by a discussion of the functional design for hardware and software that will be employed under this architecture.

- <u>Support Statewide Justice Security</u>

  Many CJIS applications provide shared services to the CJIS community, and this is a role that CJIS is very likely to perform well into the future. Because of this, the CJIS security design must fully consider securing the access to these resources by other state agencies, local agencies, state and local nonjustice agencies, private service and legal firms, citizens, and other entities. The security services provided under this design will extend to external constituents.

- <u>Support WAN and LAN Access</u>

  Current access to the CJIS applications by external entities is largely through either dedicated devices or closed systems. In the future, these CJIS application services will be provided to agencies through the Internet, WANs, and LANs. These networks may be open and support nonjustice personnel. The technology security architecture must be robust in its support of this type of operating environment.

- <u>Support Remote and Mobile Access</u>

  There has long been a demand for access to justice information and applications in the field. Technology advancements have made delivery of this information and applications feasible. The technology security architecture must be robust in its support of this type of operating environment.

- <u>Use Industry-Standard Technology</u>

  North Dakota is not chartered or funded to research and develop custom technology security solutions. Because of this, the state will rely on industry-standard technology security mechanisms.

- <u>Comply With Mandates</u>

  North Dakota participates in number of federal and national organizations that share the use of applications and networks. In doing so, the state must adhere to the security policies for those applications and networks. The CJIS technology security architecture should support these requirements.

■   Refine Security Plans and Policies

In conjunction with the North Dakota-sponsored security audit, the state should refine security policies and procedures for all of its applications and networks, once the final recommendations are received.

EXHIBIT P-5-1 identified several physical components of the security architecture that are already in place. The discussion notes below highlight some of the functionality provided by those components.

D.   DISCUSSION NOTES

The technology security architecture builds on the future network and hardware infrastructure architectures previously described. The security functional architecture includes the following key components:

■   Firewall Technologies

CJIS will employ an integrated set of firewalls to protect its IT resources. This includes primary and fail-over firewalls at the data center (likely supported and located at the North Dakota ITD Data Center). This firewall configuration controls firewall appliances at remote CJIS locations as necessary. Traffic between these firewalls is encrypted to ensure security of transmissions over the intermediary networks (some of which may be open networks). North Dakota employs the Cisco PIX solutions for its firewalls.

■   Intrusion Detection

Intrusion detection systems provide automated scanning, notification, and counteraction when attempted intrusions occur. The device is particularly important in detecting rapid bulk attacks, which occur before administrators can react, and slow time-spanned intrusions, which are difficult to aggregate and counter. These systems will be deployed at key junctions in the CJIS network, including:

»   The primary firewall router.

»   The DMZ router.

»   The Service Systems router.

■ <u>Directory Server</u>

A directory server will be used to search and manage a very large number of user entries at a time. This server stores user information, group data, access control lists, and client profiles. It eliminates the need to enter user data in multiple servers and will employ industry-standard Lightweight Directory Access Protocol (LDAP). This service will support the Security and User Database, detailed in APPENDIX Q-1.

■ <u>Web Servers</u>

Agency Web servers will be deployed in this DMZ subnetwork, providing external entities with access to applications and data without compromising the security of the service systems maintained by CJIS.

■ <u>Certificate Authority</u>

Certificate authority will be employed to identify the device used for a transaction with CJIS resources. This supports data integrity and nonrepudiation.

■ <u>Authentication Server</u>

The authentication server supports the administration of a strong, two-factor user authentication design. This enables the state to identify the individual accessing CJIS IT resources.

■ <u>Client-Side Encryption Software</u>

This software enables trusted client devices to transmit encrypted messages to and from CJIS technology resources over open networks.

It is important to note that this design is presented to support planning for CJIS. Given the network study currently under way, independent of this planning process, it is likely that this security architecture may be modified in some fashion.

APPENDIX Q
MANAGEMENT ARCHITECTURE PACKET

MANAGEMENT ARCHITECTURE PACKET

The management architecture provides the framework for the management and support structures that will be used in the CJIS architecture. The framework consists of the management vision and several types of tools that will help manage the CJIS project efforts and implemented systems. In addition, the management architecture provides an outline for the types of support that are envisioned for the CJIS integration backbone.

A.   VISION

The vision for the CJIS management architecture consists of three primary components that are necessary to implement CJIS:

■   The project and development management tools and techniques that will create and implement CJIS projects.

■   The system management and quality control tools and procedures that support the operation of CJIS systems.

■   The security, audit, and monitoring procedures and tools that provide the validation that the CJIS is secure and the information about who interacted with CJIS system or information whenever needed.

Several key IT management tools should be in place to provide the desired quality service and maintain return on the technology investment. These tools satisfy the following principles.

B.   PRINCIPLES

The following principles outline the key processes and tools that are necessary to manage the CJIS environment. Although CJIS may not implement tools to support these principles, clear procedures to satisfy the principle should be developed and followed by CJIS project staff.

■   Configuration Control

In networks, this system gathers configuration information from all nodes on a LAN/WAN. CJIS will find the procedures and tools that support configuration control and provide stabilizing constructs to deploy and support CJIS software and, more importantly, the CJIS exchange rule base.

- **Enterprise Systems Management**

  These procedures and software manage computer systems in an enterprise, which may include any and all of the following functions: software distribution, backup and recovery, job scheduling, virus protection, and performance and capacity planning, etc.

- **Asset Management**

  These procedures and software collect and maintain an accurate inventory of hardware and software assets. It is often a component of the Enterprise Systems Management software. CJIS may not have an immediate need for asset management software, but CJIS assets should be managed procedurally as soon as a CJIS project starts.

- **Project Management**

  These procedures and software are used for management, scheduling, and controlling projects. Features include managing human resources; scheduling; tracking project, task, and/or resource levels; tracking issues and risks through resolution; and managing multiple projects. This type of tool set is also often used for estimating projects and determining how far along a project is.

- **Desktop and Server Management**

  These tools and procedures are meant to simplify desktop and server administration by providing automation to common administrative tasks such as software distribution, inventory collection, virus protection, backup, and remote control capabilities. Software that supports these efforts also manages common maintenance tasks such as upgrading operating systems and applications, as well as performing virus scans and periodic system backups.

- **Storage Management**

  This area includes tools and procedures that administer any or all of backup, archival, disaster recovery, and hierarchical storage management procedures within the CJIS organization.

- **Database Management**

  These procedures and software perform the routine and automated management of databases. They should provide monitoring of critical relational database management system parameters, including status, event, and table space. Software supporting these efforts are capable of problem detection and can take automated, corrective action when undesirable events occur.

- **Help Desk Management**

  Help desk tools enable the tracking and monitoring of system and user problems and resolutions. The operational premise for this is to improve and manage service-level agreements, improve customer support, and provide knowledge management.

- **Internet Management**

  Because Web-based applications can be very resource-intensive, encompassing many types of data, Internet management tools will help to ensure content availability. This is accomplished via site monitoring, traffic analysis, and Web server management. The critical CJIS issues are the availability and performance of CJIS intranet pages. These tools and procedures should focus on managing those aspects of the CJIS implementation.

- **Operations Management**

  These procedures and software tools control system workload, output, and console management. Other aspects include data transport, event correlation, and cross-platform scheduling. A resulting component of operational management efforts should be operational and systematic benchmarks.

- **Application Management**

  These procedures and software manage the availability of network-centered applications within an organization, such as e-mail, the CJIS intranet, and client-server applications. The purpose is to keep applications tuned and operating. In addition, the procedures and tools should assist CJIS to forecast possible failures based on historical problems and issues.

- **Security Management**

  These procedures and software manage the security architecture. Several systems contribute to the security systems that will be used by CJIS. These systems, outlined in APPENDIX Q-1, will require continual monitoring and validating efforts. An additional component of the security management principles is the mechanisms that are used to authorize, create, and manage users. The security management procedures that support the tools and systems should focus on the necessity to review access and security risks and check overall CJIS security.

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■   <u>Audit Management</u>

These procedures and software manage the audit and logging systems. These systems also contribute to the security and tracking mechanisms used by CJIS. These systems, outlined in APPENDIX Q-2, will require periodic monitoring and validating efforts. The auditing and logging management procedures that support the tools and systems should focus on the level of information that is required and actually captured by CJIS audit and logging functions.

These principles outline the significant management efforts necessary to operate the CJIS systems that are envisioned for North Dakota. The following subsection highlights specific areas in which tools and procedures should be implemented.

C.   <u>DESIGN DECISIONS</u>

The following decisions should be implemented either procedurally or with software tools available from commercial sources.

■   CJIS should employ the following project and development management tools and techniques:

    »   Configuration Control

    »   Asset Management

    »   Project Management

    »   Enterprise Systems Management

■   CJIS should employ the following system management and quality control tools and procedures:

    »   Enterprise Systems Management

    »   Desktop and Server Management

    »   Storage Management

    »   Database Management

    »   Help Desk Management

    »   Internet Management

    »   Operations Management

» Application Management

» Security Management

■ CJIS should employ the following security, audit, and monitoring procedures and tools:

» Enterprise Systems Management

» Security Management

» Audit Management

These decisions will focus the management efforts into common approaches that support the CJIS. The specific function designs are detailed in the following management design packets:

■ *Security and User Database Design Packet (APPENDIX Q-1).* The packet outlines data center design principles and decisions.

■ *Auditing and Logging System Design Packet (APPENDIX Q-2).* The packet outlines tactical server design principles and decisions.

The design packets support the management architecture by highlighting specific points that meet the needs of requirements identified in the CJIS Requirements Document.

D. <u>DISCUSSION NOTES</u>

The following discussion notes should be considered in support of the information presented in the previous subsections.

■ Project management practices and policies will be an initial project in the CJIS implementation plan. The project management component of the CJIS plan is essential. Clear milestones and communication must exist for CJIS success.

■ Enterprise management tools may currently be employed by ITD; however, CJIS should further employ tools whenever a functional area tool set or procedural solution is not available from ITD.

■ Because of the scope and depth of possible CJIS, priority should be given to establishing user access and management tools as rapidly as possible within the project efforts. This will allow CJIS management to maximize support staff time on tasks other than account management.

- The implementation of security and auditing procedures should also be a key CJIS implementation priority owing to the requirements of various CJIS organizations and oversight agencies. In addition, these tools will assist CJIS project teams with their efforts to initial implementation security configurations.

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SECURITY AND USER DATABASE DESIGN PACKET

This subappendix provides the design and conceptual structure of the user authorization and security system that manages access to information within the systems. The security system will be an important part of the CJIS environment because it is the component that determines what is seen and not seen. In addition, it will provide a smooth transfer between the various system components without a need to reauthenticate between systems. The vision, principles, design decisions, and discussion notes below provide specific insight into the security design.

A.   VISION

The vision of the user authorization and security model is to create a single sign-on access point that controls the user's access to all components within the CJIS environment. The security system may physically exist in two separate systems as noted in EXHIBIT Q-1-1, which follows this page. This exhibit depicts the user authorization and security model. The following concepts highlight the purpose of the user authorization and security design:

■   The security repository will be the primary means to authenticate users and access to the systems.

■   The LDAP services will be the secondary means to authenticate users and access to the systems that are currently configured for LDAP support.

■   Access information will be maintained through a combination of the current LDAP service and a user interface to the security repository.

The security and user database vision is supported by the principles outlined in the next subsection.

B.   PRINCIPLES

As stated in the vision, the primary means to authenticate users will be based on the user security repository. The secondary means will be the existing LDAP service that is currently configured for some systems. The following principles apply to the user authorization and security model.

■   When a service or system is unable to utilize the security data repository directly, it will utilize the LDAP services.

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STATE OF NORTH DAKOTA
CRIMINAL JUSTICE INFORMATION SHARING PROJECT

SECURITY MODEL
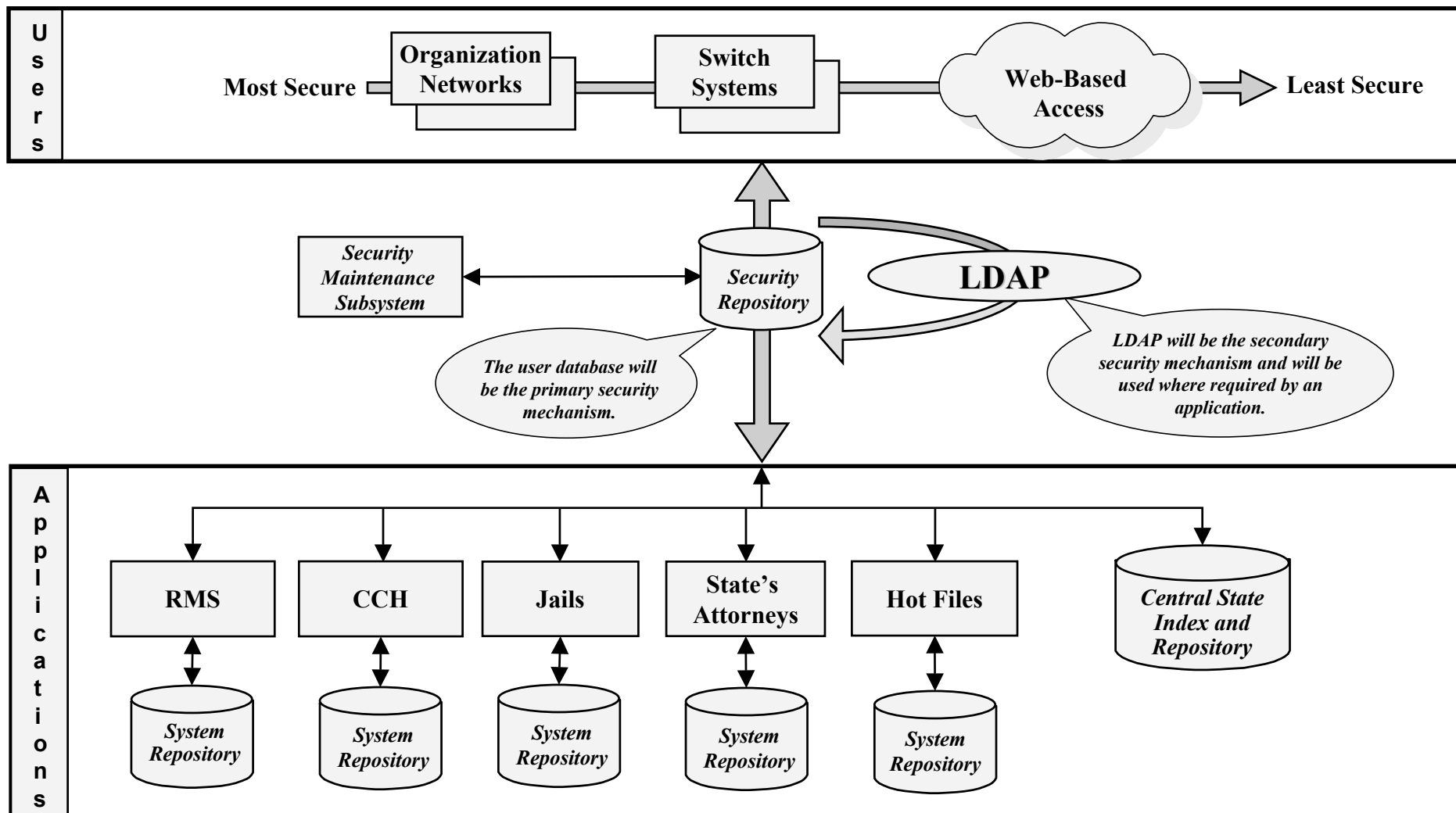
- Services and systems that do not use security data repository will be scheduled for replacement or upgrade at the earliest possible time.

- Security will primarily be maintained in the security repository for ease of use and maintenance.

- The security repository will be a physically separate database.

- The security repository will be SQL-compliant.

- The LDAP services will be based upon the existing CJIS standards and current implementation.

- The security repository will used to populate the LDAP services information.

These principles guide the design decisions listed in the next subsection.

C.   DESIGN DECISIONS

The design decisions provide the tactical design decisions that guide the security system implementation. These design choices will be used to structure the physical implementation characteristics of the security repository and the current LDAP service-based systems. All construction and implementation choices will support the security model and are outlined by these guidelines:

- A Web-based front will be created to easily manage the information in the security repository.

- The security repository will house all non-LDAP security information such as specific message key authorizations, application component privileges, and query permissions.

- The security repository will utilize SQL executive commands to run scripts that will apply updated security information to the LDAP service.

- Applications and query components will check the security repository for authority to execute actions against system information. This may require specific modifications to applications and services to utilize the security repository.

- Both LDAP and non-LDAP access will be annotated in the audit subsystems.

The impact is described in the discussion notes below.

D.   <u>DISCUSSION NOTES</u>

The critical security issue that must be managed is interaction between the security repository and the LDAP services. Applications must be designed with the security repository in mind. Other discussion notes are outlined below.

- Script configuration management and maintenance must be carefully established and controlled.

- Access to the security repository must be controlled through a dedicated front end.

- Security repository access should be fully audited.

The notes require specific attention and necessitate further discussion of the auditing and logging system design, presented in APPENDIX Q-2.

AUDITING AND LOGGING SYSTEM DESIGN PACKET

This subappendix provides the support structure design principles that enable full system auditing and activity logging for the North Dakota CJIS environment. The concept of the auditing and logging system is to create a layer that resides within all components in the CJIS environment that will provide audit information about the activity within the systems. This will occur for all access methodologies and will contain defined information based on CJIS business rules. The vision and concepts of the auditing and logging are described in the following paragraphs.

A.   VISION

The audit and logging system will be a system layer between the access point and the actual information repositories. The components that comprise this layer will be focused at the point of service and component access. This creates the environment depicted in EXHIBIT Q-2-1, which follows this page. The environment consists of the following key concepts:

■   CJIS needs the ability to identify a user and determine that user's authorized services from a super set of authorized enterprise services.

■   The actual activities accomplished by the user will be logged within the audit system.

The auditing and logging system vision is supported by the principles outlined in the next subsection.

B.   PRINCIPLES

The auditing and logging system will be focused on capturing user entry, activities, and exit from identified system components and services. The design of the auditing and logging system will be based on the key principle that information access will be audited unless specifically excluded from the audit routines. Other principles that provide auditing guidance and logging criteria are outlined below.

■   Audit settings will be maintained from a single point of maintenance.

■   A single point for security logging authority will be established for all application and enterprise system solutions.

STATE OF NORTH DAKOTA
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AUDIT MODEL
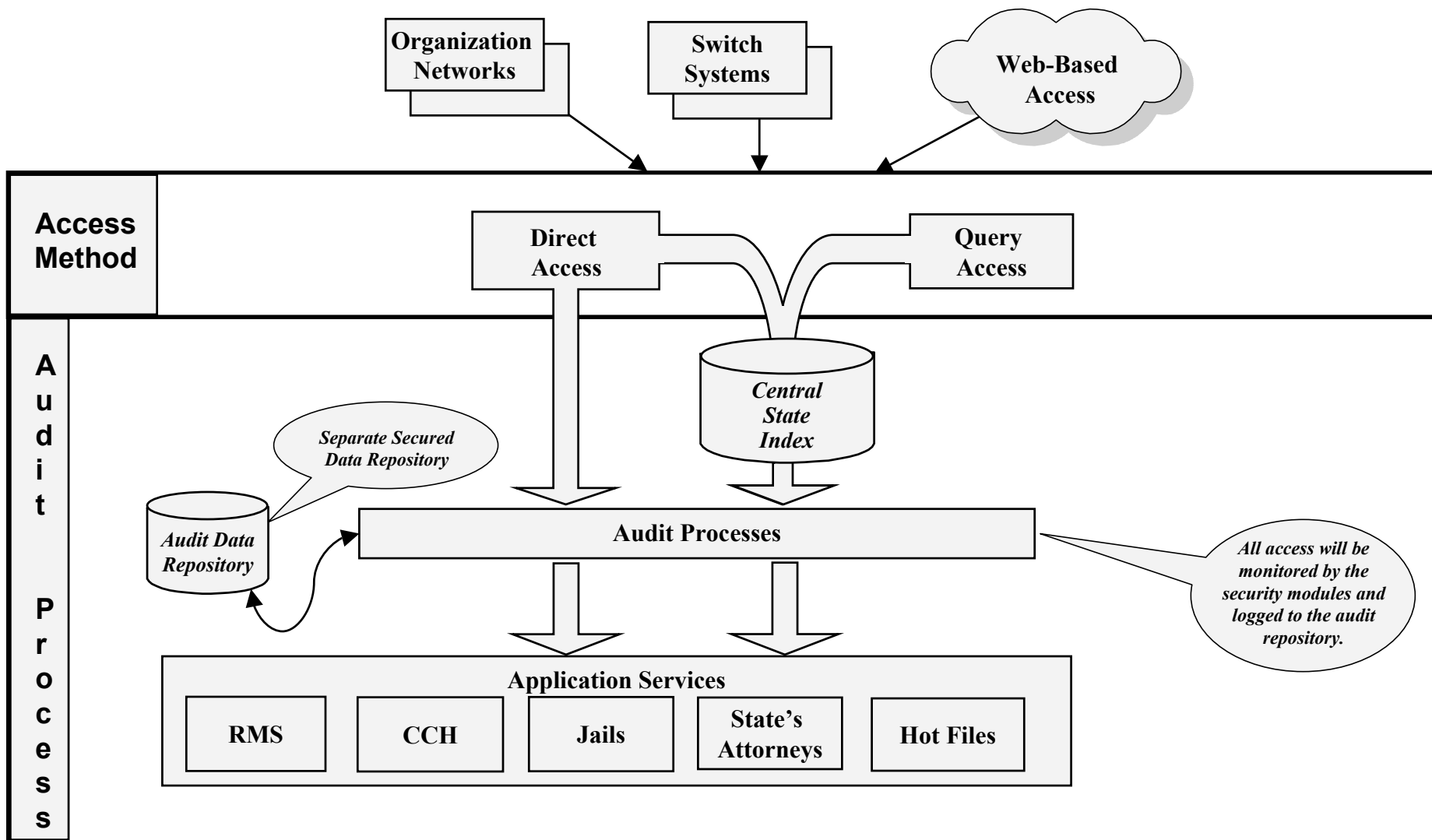
- An easy-to-use interface that will contain the maintenance routines for all auditing and logging maintenance.

- All access to the audit and logging information will be logged in accordance will CJIS policies.

- Auditing routines will not affect performance of the application services.

These principles guide the design decisions listed in the next subsection.

C.   DESIGN DECISIONS

The design decisions provide the tactical design decisions that guide the auditing and logging system. These decisions will be used to structure the physical implementation characteristics of the auditing and logging system. All construction and implementation choices will support the structure outlined by these decisions:

- The auditing and logging repository will be maintained in a separate SQL database.

- This information will have strictly controlled access.

- An auditing process layer will exist between the access systems and the data repositories.

- Access routines will contain specific logging and auditing modules that will record audit information based on the current auditing level assigned to a function.

- Auditing routines will capture all information desired by CJIS.

- Specific auditing functions will occur at the time of access, prior to the display of any results.

The impact of these decisions is described in the discussion notes below.

D.   DISCUSSION NOTES

Audit issues must be managed within the auditing and logging system implementation effort. The specific issues that must be managed are outlined below.

- CJIS needs specific audit detailed layers that can be turned on and off by CJIS system administrators.

- Audit rules must be clearly articulated within CJIS policies and system documentation.

- Audit testing should occur periodically once the auditing and logging system is implemented.

The impact of the auditing and logging system will be evident in two conditions: tracking unauthorized use of information and assisting with system access and performance problems.